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DEVOTED TO

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JANUARY, 1891.

[No. 1.

COMMUNICATIONS.

Some Notes on Experimental Implantation of Teeth.

BY M. H. FLETCHER, D.D.S., M.D., CINCINNATI, OHIO,

Read before the Ohio State Dental Society, October 8th, 1890.

This paper is a report of an incomplete series of experiments on the implantation of teeth. Though the experiments are incomplete they were carried far enough to indicate at least one important fact, namely, that the pericementum probably plays no part in the repair and retention of implanted teeth, but that such success as is attained is due to the re-organization of the cementum.

In order that the writer's position may not be misunderstood, it seems necessary to define a few terms which have been employed in explaining the success and failure of implanted teeth in the present status of the operation. Terms will be used in this paper with the following meanings :

CASES OF FAILURE.—To be understood as including those in which implanted teeth have been lost from any cause within six weeks from time of insertion.

PARTIAL SUCCESS.—Including those cases in which the teeth have not become firm after a few months, and which show continual signs of local inflammation.

SUCCESS.—Including those cases where the implanted tooth has become apparently healthy and is usable, and in most cases perfectly rigid.

COMPLETE SUCCESS.—Including those cases which may be found to be perfectly healthy and usable after a period of seven to ten years.

The history of implantation need not be repeated since it is familiar to all. But to speak of the various ideas and methods that have been followed is directly in point, for these show that we have been relying upon the wrong tissue for the success of the operation.

For instance, Dr. W. J. Younger, the originator of the process, believes that in order to be successful the peridental membrane should be intact on every part of the root. He has used both fresh and old teeth, but I believe uses old nearly altogether. He reports a large per cent. of successful cases.

Dr. George Cunningham is reported as saying in 1888:

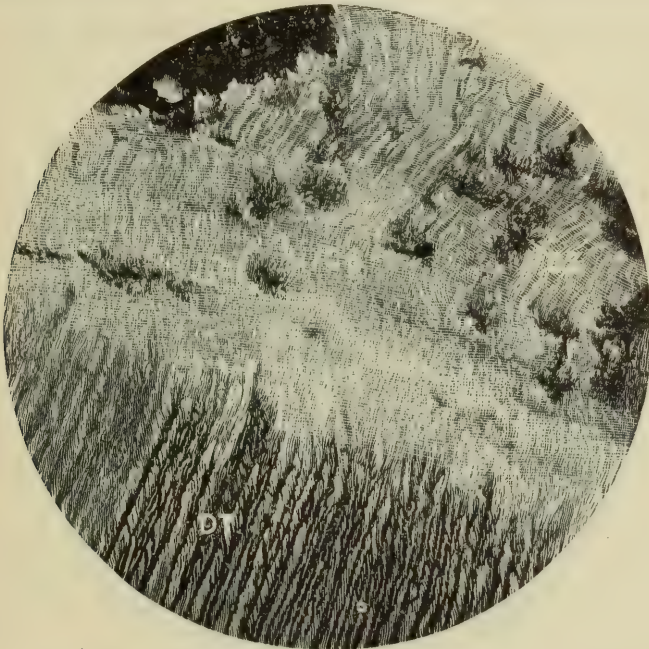
“Thus far I have used nothing but freshly extracted teeth, and believe that if a tooth is implanted before the death of the pericementum and cementum the prospect of union is increased, and the loss by absorption decreased. The general opinion seems to have prevailed that freshly extracted teeth would be more successful in implantation than old ones.”

It seems to have been an almost universal opinion that the pericementum must be intact in order that these cases might be at all successful, the writer of this paper having held that opinion.

On the other hand, Dr. G. L. Curtis, who reports a very large number of successful cases, strips the entire membrane from the root, believing it to be a hindrance rather than a help in their repair. However, he gives no physiological reason for his opinion. So far as my knowledge goes Dr. Curtis is the only person on record who takes this view, and operates by denuding the roots of the teeth. And it would seem, according to the results of the experiments herein reported, to be a step in the right direction.

Dr. H. A. Smith's paper, entitled “Dental Implantation,” read before the American Dental Association in August, 1889, and the discussion of the same, probably gives the latest and most reliable statistics and opinions on this subject. Computation from this paper shows a loss of about 17 per cent. of the cases reported. This is the nearest that can be calculated from the returns given. But it is probably far from correct, since so few who are known to have performed the operation responded

to Dr. Smith. The probabilities are that there are many more cases of failure than have been reported. Also there probably is a large number who have performed the operation who have never been heard from in any way. This is more likely to be true especially if the results of their experiments were unsatisfactory. Dr. Smith's notes are compiled from operations performed prior to August, 1889.



No. 1. The illustrations accompanying this article are partly of the normal tissue for the purpose of comparison with those involved in the cases of implantation. Figure 1 represents normal dentine and cementum and the Junction between them. D. T. Dentinal Tubes. I. S. Interzonal Layer. C. S. Cement Cells. x 175.

The writer's own experience on the human subject is limited to six cases. One of these was a failure, three were partially successful, and two successful. But we consider even the successful cases as far from complete success, since they to-day show signs of inflammation in the region of the roots, in addition to a tendency of the gums and bone to recede from the neck of the tooth. They can be made to bleed easily by a moderate pressure of the finger on the gum over the tooth. These few cases are

not sufficient to establish a rule, but the consideration of their symptoms in connection with the physiological processes probably involved in their repair tends to establish this opinion without further evidence.

The mystery connected with the subject of repair in implantation, and the various opinions expressed upon it, induced the writer to begin a series of experiments on the lower animals with a view of determining, if possible, what the real conditions are. These experiments you will readily understand were fraught



No. 2. Represents a section of normal bone, the cells of which are C. to be comp. and with the cement cells in figures 1 and 6. H. Haversian canals. x 350.

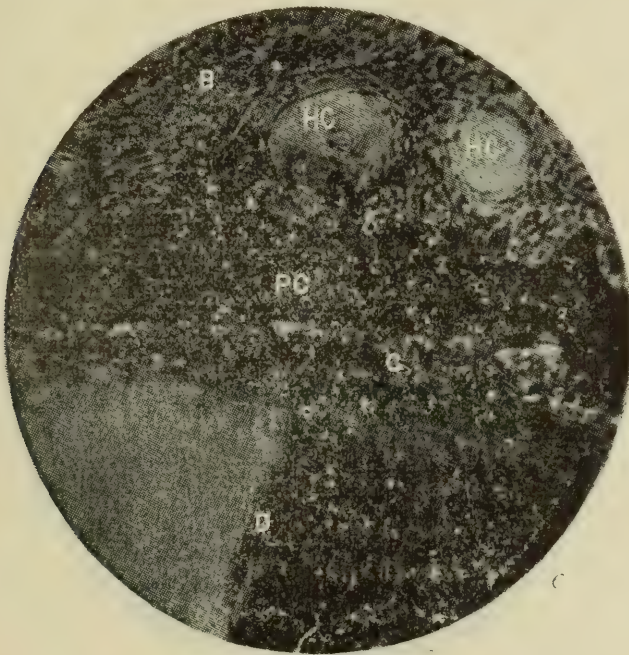
with great difficulties in the absence of the knowledge of any preceding experiments in the same line.

After a conference with other histologists on the subject we decided to use a sheep for the first experiment, and the incisor teeth of small dogs for material. These teeth were selected because of their small size, thereby reducing the extent of the cutting necessary to perform the operation.

In the beginning the plan of procedure was to insert one or two teeth at a time, at periods of one to two months apart,

thereby expecting to have for examination a complete series of the various stages of repair from its incipency to its completion.

The experiments were begun April 16, 1889, by extracting the incisor teeth of a small cur. These were dried before the fire for several hours, after which the pulp chambers were thoroughly cleansed and disinfected, then filled with chlora-percha and gutta-percha nerve canal points.

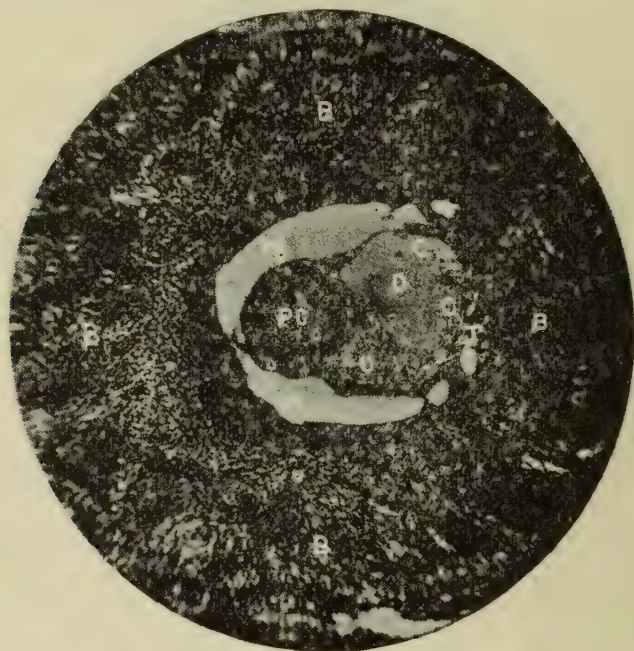


No. 3. Normal Structure *in situ* from the goats jaw, to be compared with Nos. 4 and 5. C. Cementum. P. C. Pericementum. H. C. Haversian Canals. B. Bone. x 50.

April 19. Armed with the teeth and instruments for the experiment we repaired to the field of labor. When ready to begin, the greatest difficulty presenting itself related to the means by which the teeth could be held in position long enough for them to become fastened so that they might not drop out. Several plans had been considered. But when ready to proceed they were all abandoned, and a new one, suggested by my assistant, Dr. Arthur Knight, was adopted. This consisted of sewing

the skin entirely over the teeth, the implantations all being made externally instead of in the mouth. I had intended to operate in the mouth, but abandoned the attempt on account of the extreme difficulties in the execution.

The first attempts were made on a sheep about $2\frac{1}{2}$ years old. The animal was put under the influence of sulphuric ether, and the skin was laid open over the external surface of the cannon bone of the right hind leg one inch below the upper joint. A



No. 4. Section through an implanted tooth showing surrounding tissue and junction with bone at J. B. Bone. C. Cementum. D. Dentine. P. C. Pulp Canal, filled with gutta-percha. M. Marrow space. x 10.

hole was drilled with a large fissure burr, endeavoring if possible to extend the opening into the cancellous portion of the bone, and yet in such a way as not to injure the joint through producing inflammation therein. One half of the crown was then cut off from a tooth in order that its point might not irritate the skin. After it was settled in the drilled socket we took two stitches in the incision in the skin drawing it together so as to cover the tooth completely, thus preventing it from dropping out when it

became loosened by inflammation. After having dusted iodoform plentifully over the wound and into the hair of the vicinity the operation was considered completed.

A 1 to 1000 solution of bichloride of mercury was used freely on hands, instruments, and teeth, as well as in the wounds, during the operations.

A second tooth was inserted in the opposite hind leg in the corresponding position in the corresponding bone. The same



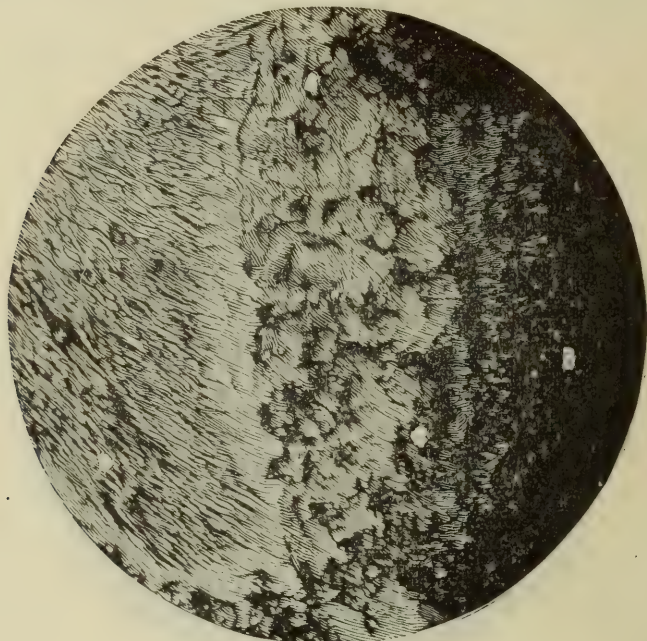
No. 5. Represents a section through same tissues. x 50 showing their structure more plainly. D. Dentine. C. Cementum, (to be compared with the cement cells in Fig. 1.) P. C. Pulp Canal filled with gutta-percha, B. Bone, where the ridged union with the tooth occurs.

plan of disinfecting, removing a part of the crown, and sewing up the skin, was followed in the second operation, as it was indeed in all subsequent implantations.

The animal revived slowly from the anæsthetic. It did not recover but died on the third day from what appeared to have been congestion of the lungs.

Thinking that a goat, being a more hardy animal, would be better adapted for the experiment, one was secured which was about three years old.

April 29. The goat was secured to a bench, and given something to eat instead of being anæsthetized. One tooth was inserted in each hind leg in substantially the same manner as was done in the case of the sheep. Within a few days considerable inflammatory exudation occurred in the region of the wounds but this terminated by resolution in its normal time.



No. 6. Represents a section taken from the place of union between implanted tooth, with bone. B. Bone. D. Dentine. C. Cement cells. x 340.

No further attempt was made at implanting until June 14, when we inserted a tooth in the lower border of the inferior maxillary bone, left side, about two inches anterior to the angle. Another attempt was made at this time to insert a tooth inside the mouth, into the lower maxillary, but it was entirely unsuccessful. The remaining teeth were all inserted in the lower border of the inferior maxillary bone on either side, and about $\frac{1}{2}$ inch apart, in the same manner as before described. The cuts in the skin healed in the normal time for such tissue to repair.

The operations were performed on the following dates :

1889, April 26, 2 teeth.

“ June 14, 1 tooth.

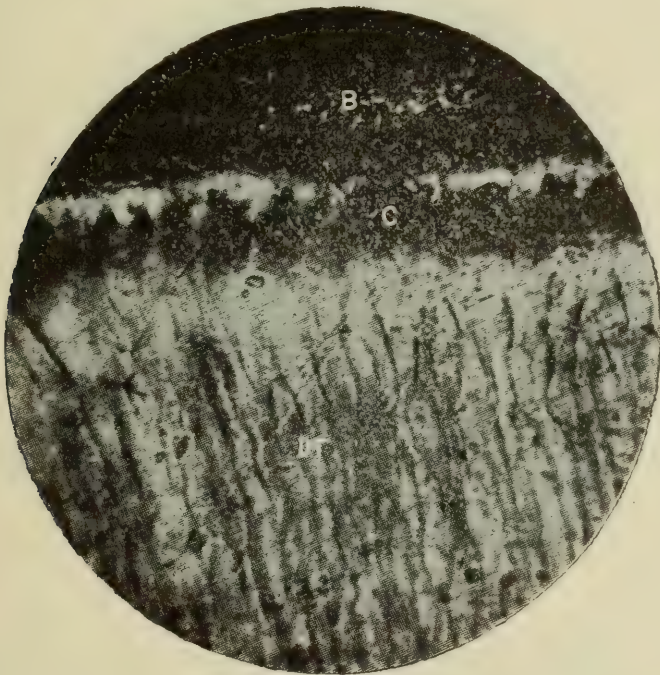
“ July 27, 1 tooth.

“ August 8, 2 teeth.

“ November 8, 1 tooth.

1890, January, 17, 2 teeth,

making in all nine teeth implanted.



No. 7. Section of normal structure through one of the dog teeth, such as were used to implant, showing only a single row of cement cells. D. T. Dentinal Tubes. C. Cement Cells. B. Bone. x 600.

Only two of the operations in the jaw produced any swelling. In one of these a point of the drill was broken off and remained in the bone, and in the other the tooth was allowed to play very loosely in the socket as a matter of experiment. This tooth was one which had been denuded of pericementum, the only one so prepared. The escape of these foreign bodies from the bone to the skin probably produced the swelling in these cases.

On May 3, 1890, one year and two weeks from the date of the first operation on the goat, the animal was killed, and the bones containing the implanted teeth were dissected out and examined.

On removing the skin from the bones it was found that some of the teeth remained with the crown above the bone. But they were invariably covered with periosteum, and all but two apparently had undergone complete decalcification as far as could be

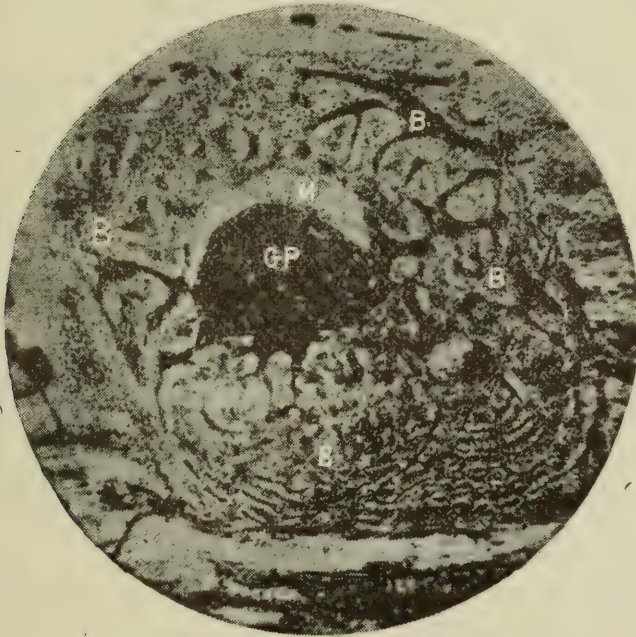


No. 8. Represents a section through the tooth in which the hypertrophied bone had inclosed the enamel above the neck of the tooth and the absorption on two sides. B. Surrounding bone. M. Marrow spaces. D. Dentine. E. Enamel P. C. Pulp Canal filled with gutta-percha. x 10.

judged from outside appearance. The periosteum covering the crown of the tooth and that, projecting into the socket, as well as that in the immediate neighborhood, seemed free from inflammation. The bone immediately adjacent to each tooth showed signs of having been inflamed and had become hypertrophied to an extent that left the tooth or its remnants in a funnel-shaped depression.

Some of the teeth seemed to have disappeared completely; nothing remaining to be seen of two of them but the gutta-percha which had been used to fill the root canal. This was found underneath the pericementum just over the site of implantation.

Blocks of bone containing the teeth or their remains were now sawed from the body of the bone and placed, some in alcohol, some in Muller's fluid, where they remained for two weeks, and



No. 9. Is a section through one of the bones where a tooth has been set. The line cut by the drill can be plainly seen by the difference in the bone structure. Nothing remained in this case but the gutta-percha (marked G. P.) which had formerly filled the pulp canal. B. Bone. M. Marrow space G. P. Gutta-percha. x 10.

were then cut into hard sections by filing and polishing, and are here represented in photo-micrographs. Two are being decalcified, for sections with the microtome.

On making sections some seem to have been completely decalcified, yet with very little or no characteristics of either dentine, cementum, or enamel remaining. In three some dentine was left. One of them had enamel upon it which had become sur-

rounded by periosteum, it having grown into the socket. But the periosteum was not attached to the tooth. Absorption of the root had progressed until fully half of it had disappeared, the absorption having gone up two sides of the tooth into the crown. A photo-micrograph from this specimen, as well as other sections, will be shown so that the matter may be better understood.

The most interesting section made is one cut from the tooth implanted June 14, 1889, it having remained in position a little less than a year. In this case the cementum has apparently become organized on two sides and thoroughly ankylosed to the adjacent bone. And not only this but the cementum seems to have progressed in growth at the expense of the dentine. This condition can be seen plainly in the accompanying photo-micrograph of the section. Now while the fact that this one tooth has thus united does not prove that all others will do so, yet it seems to give to us a hint as to how the retention and rigidity of these teeth is to be explained. This termination of this case is a physiological process and explains the much discussed question of the processes which occur in implanted teeth. It also presents a satisfactory explanation of their permanency or complete success. As stated before in this paper the pericementum probably cuts no figure whatever in their repair but is simply to be gotten rid of by absorption before organization of the cementum can begin.

Now, if the foregoing be facts, the writer believes that complete success can not be obtained in implanting teeth as now practiced, for the following reasons :

1. The teeth and the bones of the body are developed from quite different structures and are formed in entirely different ways. The teeth arise from the mucous membrane (the epiblast), while the bones originate from the periosteum, the marrow, and hyaline cartilage (the mesoblast). Dentine is formed by a stationary cell, the odontoblast, of which only the processes become surrounded by dentine while the bone is formed by the osteoblast, a floating or migrating cell, which itself finally becomes incorporated in the bone tissue. But you may say the cementum is not dentine. And neither is it bone. It has few

or no Haversian canals, and derives its nourishment from the pericementum, the office of which we believe is to produce and nourish cementum. Our experiments seem to show, however, that cementum can be increased without the membrane. If it were a fact that the dried pericementum on the roots of implanted teeth took a new life and performed its functions as it once did, then would we have a complete success of these operations.

If it were possible to implant immediately freshly extracted teeth, then the chances of success probably would be equal to those of skin or bone grafting. Or if we could take from a living foetus the dental follicle and implant it with its surrounding tissue into another and older jaw, we probably would stand a chance of its retaining life and ultimately developing into a tooth. The latter case, of course, is totally impracticable, and the former almost as much so, for, if the proper teeth could be obtained of suitable size and shape the necessary delay in preparing the root canal would most likely be fatal to the success of the operation. Again, supposing the cementum does become organized, as we attempt to show, it can but grow and be replaced by new material at the expense of the dentine of the root in the same manner that older Haversian systems are resorbed and replaced by new ones. This process of bone resorption and repair, probably continues during the life of the animal, and in the light of biology it can only be so. Now, if resorption takes place continually in vital tissue it certainly can not be less true in dead tissue, such as the dentine of an implanted tooth unquestionably is. Consequently it would only be a few years until the entire root would be absorbed and its place taken by new material. Whether this new material would be bone or cementum we do not know, but it most likely would ultimately be bone, for it would be built by bone-producing tissues, the cementum having in time become absorbed. The fate of transplanting and replanting is not yet forgotten. And yet these operations came nearer the necessary requirements than does implanting.

While preparing the present notes my attention has been called to a report of some experiments bearing directly upon the points in question, that of the organization of dead bone, which we

believe to be comparable to the organization of dead cementum. They were carried on by William B. Hopkins, M.D., and C. B. Penrose, M.D., Ph.D., of Philadelphia, and published April 5, 1890, in the *Journal of the American Medical Association*. These experiments were to determine the practicability of the use of sterilized dead bone dowels in the union of fractures. These dowels were sterilized by first boiling them thoroughly and then keeping them in an alcoholic solution of corrosive sublimate (1 to 1000) ready for use. Their methods of procedure were to drill through or into the bones of young dogs and insert a sterilized bone peg which exactly fitted the hole. This was done both in normal and fractured bones. To give the results I quote from their article as follows:

EXPERIMENT NO. 1.

“The extremities of the dowel which were in contact with the shaft of the femur had become thoroughly organized, being full of Haversian canals continuous with those of the dog bone of which they had become a part, and on fresh sections showed the pink line of living vascular bone.

The intervening portion between these extremities, corresponding to the medullary cavity, showing no attempt at organization, as it was pure white on fresh section, and contained no Haversian canals, but the erosions on its surface clearly indicated that rapid absorption was taking place. x x x

From these experiments they give the following deductions:

1. That where sterilized dead bone is placed, under favorable circumstances, in contact with living bone it undergoes organization.

When, on the other hand, it is acted upon by periosteum, it is absorbed, and when placed in the medullary cavity in not too large bulk, organization combined with absorption takes place.

2. That these processes go on, perhaps, most actively between the fifth and eighth weeks, and are not necessarily associated with any inflammatory action.

3. That therefore, where these dowels are employed to pin together fragments of bones after fracture, to fix the extremities of bones after resections, or for any other mechanical purpose in

surgery to which they are adapted, they may be relied upon to do their work for a period of one month or six weeks, and hence to give ample time, as a rule, for union to occur.

After this their presence being no longer required they gradually lose their identity in the surrounding bone and disappear."

As to absorption and organization our experience was identical with the experiences of Drs. Hopkins and Penrose in that the tendency to absorption was much greater when the tooth extended into the marrow cavity, and a tendency to organization where compact bone structure surrounded the teeth, and that absorption proceeded more rapidly in places where the periosteum came into contact with the tooth than when this membrane was absent—in other words, when the teeth came into close proximity to tissues which produce or foster the growth of giant cells or osteoblasts the absorption was greatest, and that organization is most likely to occur when the tooth is fitted only moderately tight into solid bone structure.

Another point bearing on the practicability of the subject is brought out by experiments carried on by Mr. Wm. Scovell Savory in 1864. He demonstrated by a series of experiments performed upon various animals that ivory pegs driven tightly into healthy bone were more quickly absorbed than if the fit were only moderately tight. Our own experiments up to the present would not have brought this point out. But the hint is pertinent and I think should be heeded by those performing the operation in the future.

In the light of our past experiments we can see the following points which tended to make them less successful:

1. The teeth used were of young animals and had a very thin growth of cementum on the roots.
2. The teeth were fitted too tightly into the bone.
3. They were completely covered with the skin instead of leaving the crowns protrude.

In the continuation of the work these points can all be noted so as to obtain a greater number of desired results.

From the foregoing we have the following conclusions:

FIRST. From the statistics we conclude that the operation

probably has fallen into disrepute either from failure or lack of confidence.

SECOND. That when teeth are implanted the roots of which are covered with dried periosteum, this membrane must be absorbed before union can take place, and that when union does occur, it is most probably that of ankylosis between vascular cementum and the surrounding bone. In view of this fact, if the operation is to be performed, such teeth should be selected as have a considerable layer of cementum, and should be denuded of the old membrane before being implanted.

THIRD. That organization of the cementum is most favored when it is so placed in living bone that it impinges—but not tightly—in all its parts upon solid bone, and for this reason the cicatrix of bone formed by that growth which fills the socket after extraction of a tooth, is the most favorable place for the implanting of teeth.

FOURTH. That the resorption and rebuilding of the tissues of the body necessitate the absorption of the dentine of the roots of implanted teeth, and thereby their loss. But that as a temporary replacement of lost teeth the operation of implantation is justifiable to those who comprehend it to be such.

Chloride of Methyl.

BY L. E. CUSTER, D.D.S., DAYTON, O.

Read before the Ohio State Dental Society, held at Columbus, October, 1890.

Some three years ago Dr. R. Ottolengui suggested the ether spray as an obtundent for sensitive dentine. Although this was not the first time the ether spray was used for this purpose, it was original with him, and by the strong claims for it succeeded in turning the attention of some in that direction which resulted in a number of new agents for obtunding sensitive dentine. Dr. Otto Arnold at a meeting of this society, held two years ago, said he used a spray of nitrous oxide for the purpose,

and was followed by Dr. G. L. Curtis, who read a paper upon the same agent at the March meeting of the New York Odontological Society.

The last obtundent of this nature of any importance is chloride of methyl, which was introduced by Dr. M. L. Rhein after a number of efforts.

There has been considerable confusion regarding the action of these agents. Dr. Ottolengui was first led to use the ether spray, by the idea, that it would produce more thorough dehydration of the dentine than could be accomplished by alcohol and hot air, and he was successful. But let me say that this success was not the result of dehydration. 1st, because ether has no affinity for water; 2nd, because it reduces the temperature of the dentine which opposes the evaporation of its moisture. The ether spray unless inhaled obtunds sensitive dentine by no other means than the cold which it produces.

Dr. Curtis in his paper in speaking of the action of nitrous oxide, said: "Whether the action of nitrous oxide, as herein set forth, is chemical or mechanical I am yet unable to state, but by experiments now under progress I hope to arrive at a clear solution of the question. Thus far I am led to the belief that anæsthesia is the result of dehydration." Experiments would be unnecessary if the author would read a lesson from the simple nurse-girl who hangs the napkin before the fire to dry. Heat produces evaporation of moisture, not cold. Chemists say nitrous oxide has no affinity for water, but it has been observed that water takes up 80 per cent. of its volume of the gas. The cold produced by the volatilization of nitrous oxide is so intense that the water of the dentinal tubuli would be frozen before enough could evaporate to produce the profound results following the use of the powerful agent. The only manner in which I see nitrous oxide could be effective in any other way than by reduction of temperature, is either by its being inhaled, or in the following manner: It is said that after the first few inhalations of nitrous oxide the lung membrane becomes anæsthetized, so the 80 per cent. absorbed by the water in the tubule might, in like manner, anæsthetize the fibril. But that is a rather fine point.

There is no use in "chasing the devil around the stump," unless the agent is inhaled in sufficient quantity to produce general anæsthesia, it is cold that does the work, and for the following reason: For the perfect performance of nerve function the normal temperature of the organism is necessary. Lowering of the temperature obtunds the sensibility somewhat proportionate to the departure from normality. The distance of the bulbous portion of the pulp from collateral circulation, there being no blood circulation in the dentine, and the ease with which the crown of the tooth may be isolated from surrounding sources of warmth, make the action of refrigerating agents the most effective obtundent of sensitive dentine we have.

Chloride of methyl resembles common ether in appearance, taste, and smell, but it is not so inflammable. It is produced by the action of chlorine upon marsh gas, by heating together common salt, sulphuric acid, and methyl alcohol, or it is more cheaply manufactured by using the waste products of beets used in the manufacture of sugar.

This is an ether having the formula CH_3Cl . The hydrocarbon radical is very low in the series and for that reason we find it difficult at ordinary temperature to keep the methyl from passing into the gaseous form. Its boiling point is about 73° Fahrenheit, while that of ether is 96° , rhigoline 64° , and that of nitrous oxide 148° below zero. We therefore have at our command an agent which is between ether and rhigoline, which, by the warmth of the hand, volatilizes with sufficient force to form a continuous spray. It is capable of reducing the temperature to about 40° below zero which gives a range wide enough for all ordinary purposes. It has no affinity for water, and when used as an obtundent for sensitive dentine it acts purely by extracting the heat.

This medicament has another property I have found, but of which I have seen no mention, and that is as a general anæsthetic. I have had no opportunity of experimenting upon any lower animal than myself, but so far as I can ascertain it is quite as prompt and powerful as either chloroform or ether. I did not test its full capacity or I would probably not have been here.

There is one thing in its favor as a general anæsthetic, however, and that is this: The theory of Dr. H. C. Wood is, that chloroform causes more deaths than ether because it is not as volatile an agent; that when it is removed at the outset of alarming symptoms, that which is already in the system continues to act for some time, and occasionally till syncope results, while ether being more volatile, when not inhaled, readily passes off. Now, chloride of methyl being still more volatile than either of these, might it not be found a safer anæsthetic?

Dr. M. L. Rhein, to whom belongs the credit of introducing it to the dental profession, uses this agent for facial neuralgia and sensitive dentine, and it may also be used for freezing histological specimens, but I will give its qualities as an obtundent of sensitive dentine.

Volatilizing at ordinary temperature it requires no apparatus for generating a blast as with ether. Since it is not a solvent of caoutchouc, it may be carried to the tooth through a rubber tube and its flow regulated by a thumb-screw. It produces more intense cold than ether, and on that account the pain following its application is more brief, and the obtunding effect of much longer duration. It, therefore, also requires less time to obtain the same results secured by ether. It volatilizes more rapidly than ether so that all the adjoining parts are not smeared with the agent.

The objections to chloride of methyl as an obtundent to sensitive dentine are, that it is a general anæsthetic and very likely to be inhaled during the refrigerating process. It is also at the present time rather expensive. Altogether I think it is all that Dr. Rhein has claimed for it as an obtundent, and is to be preferred as a cold producing agent for sensitive dentine; but the older we get, and the more experience we have, the better, I think, we can control our patients by a sort of personal magnetism, and the use of dehydrating agents, such as alcohol and hot air, will in nearly all cases be sufficient without resorting to such dangerous methods as the use of refrigerants.

Ohio State Dental Society.

DISCUSSION OF DR. CUSTER'S PAPER.

Dr. Butler: There seems to be an indiscriminate use of terms, or at least an inconsistent employment of terms, on the part of those who have introduced the ideas of dehydration or refrigeration of sensitive dentine. One claims that by throwing a fine jet of water upon a bur while it is being rotated in a cavity you get the same result that another claims for the use of heat in a cavity. It seems to be a case of blowing hot and cold out of the same mouth. If there is any virtue in having the cavity dry, I can not see the consistency of having it wet:—or vice versa. It is a very common thing that many have observed, that when the dam is applied and a cavity dried, in cases of sensitiveness of dentine, this hypersensitive condition of the dentine becomes greatly reduced. For my part I see no philosophy in the suggestion that a stream of cold water is required to keep down the heat of friction arising from the contact of so small an instrument as a bur, with the dentine of a tooth. There is a peculiar sensation not to be compared with any thing else in the cutting of the dentine of a tooth, and it is often a pretty difficult matter to convince a patient that the pain is not going to grow worse instead of becoming less. To my conception these varying processes are merely auxiliaries to assist us mainly in controlling the patient's apprehension, and in exercising his imagination. The writer of this paper points out the simplicity of the means to be employed in refrigerating the dentine, which is in contrast with the rather elaborate and complicated apparatus employed by Dr. Rhein in his process for effecting the same purpose.

Dr. Callahan: I have never tried the chloride of methy, but have used the nitrous oxide gas spray, having much difficulty to get a strong enough current. I think the imagination of the patient has much to do with the effect. I have found that by representing to the patient the effect of chloroform, leaving him to infer that I was about to use it, I could succeed in impressing—in a measure, at least—that effect upon him, while actually

using alcohol instead of chloroform. Drying the cavity thoroughly, and using sharp instruments, would perhaps have done as well as employing the gas, unless inhalation of the gas had been employed.

Dr. Arnold: Two years ago I mentioned my use of nitrous oxide gas, suggesting its probable effect upon the imagination of the patient. I have also used a few drops of ether or chloroform, letting the patient inhale it, but not allowing him to get to any considerable extent under the influence of the drug. Nothing else compares with it. In dehydration of sensitive dentine I have found a most complete apparatus in a little invention of Dr. Niles, of Boston. It resembles an ordinary hot air syringe, and is designed to combine the vapor of alcohol with heat, in an application to the cavity of decay. I saw some very excellent results from its use. At the time I saw Dr. Niles demonstrating the use of his instrument Dr. Curtis was experimenting upon a patient in an adjoining chair, using nitrous oxide—with equally satisfactory results. My own conclusion, however, was in favor of Dr. Niles' apparatus. All this time Dr. —, operating at a third chair, was apparently getting as good results as either of these doctors named, using same preparation in the cavity.

Dr. Niles' instrument appeared to work automatically. In buccal cavities particularly it appeared to allay sensitiveness of the dentine to a great extent. I have ordered one of the instruments for my own use.

Dr. Butler: I want to speak a word of caution as regards using chloroform even in such small quantities as a speaker has indicated. Some fatal cases of chloroform narcosis have occurred where only an infinitesimal amount of the drug was used. In fact, in the great majority of cases accompanied by alarming symptoms, the amount of the drug used was small, the patient gasping and sinking away after perhaps less than half a dozen inhalations. I speak from personal knowledge as regards these alarming symptoms. At the same time it is probable that the patient's fear of a drug which he knows to be dangerous may play some part in exercising his imagination so that he easily and unconsciously becomes a victim of his own fancy.

Dr. Arnold: It is presumed that the average practitioner has sufficient intelligence to understand the nature of this agent. I am perfectly well aware of the dangerous nature of chloroform as an agent for general administration. My idea is not to administer it in the way I have described with, any view to getting its anæsthetic effect. I want simply to gain the patient's confidence by appearing to be giving something.

Dr. H. A. Smith: This discussion reminds us that doctors will disagree. I think some of us present will recall the presence upon this floor, at a former meeting of this society, of Dr. [—?] a physician, who recommended to dentists to administer ether to the patient until he gets the "glow." I have several patients who always insist upon having ether—one lady in particular. I have no hesitation about letting her have it; she will not have cavities excavated without. I have patients whose imagination I can not impress after the manner suggested by Dr. Arnold. I would like to send some of them to him. [Laughter.] A distinguished physician of Cincinnati said that the principal difference between the quack and the reputable practitioner is that the former puts his patients to sleep—makes the patient comfortable. He is not afraid to use anæsthetics—nitrous oxide gas, chloroform, hypodermic injections, local anæsthesia, or any thing to prevent pain. And he is largely successful, too. I think the physician is right in establishing this distinction; the quack makes the patient comfortable; we let him suffer. I have seen Dr. Rhein's apparatus, but have not seen its use as applied to the teeth. My impression is that the excessive cold produced must cause intense pain to the patient. I should prefer to rely upon the administration of ether to which I have already referred.

Dr. Bollinger: I have tried many obtundents, and I agree with Drs. Custer and Arnold that to impress the imagination is as good a thing as you can do for your patient. If you can gain the patient's confidence in your purpose of handling him carefully, you can control him.

Dr. Smith: For the information of those who may wish to try Dr. Rhein's apparatus, I will state that it can be had of Messrs. McKesson & Robbins, the outfit costing about \$27.50.

Dr. Butler: I have made a very good contrivance for throwing a fine jet, by using a fountain pen, drilling a small hole in the top of the holder and attaching it to a length of rubber tubing so as to allow the refrigerant spray, or whatever agent be used, to be thrown from the very fine orifice in the nose or end.

Dr. Taft: In using any of these preparations either for lowering the temperature, or for dehydration, the rubber dam should first be applied. That will prevent any unnecessary or injurious inhalation of the agent. Every one is aware that absolute dryness of the tissues favors insensibility of the dentine. All teeth can not alike be thoroughly dried. A tooth of dense structure is more thoroughly dried than one less dense. There is in the latter a diffusion of moisture that requires more time and effort to dry out. Some teeth may be expected to resist more than others the benumbing influence of cold. That depends upon the nervous susceptibility of the patient to the influence of the agent. The tooth may become benumbed under one set of conditions and not under another. We need not be surprised to find these variations. I do not think this particular agent is better than any other. Alcohol has done much in this way. The administration of various volatile agents may be effective. Caution should be used not to push to the extreme the application of cold to teeth. One of the chief objections to rhigoline was the danger of death of the pulp through the influence of the extreme cold its use produced.

[SUBJECT PASSED].

“Your Old Men Shall Dream Dreams, and Your Young Men Shall See Visions.”

BY N. S. HOFF, D.D.S., ANN ARBOR, MICH.

Read before the Ohio State Dental Society, held at Columbus, October, 1890.

In the January number of the *Dental Review* appeared a vision, given to one of our younger men, of the conditions under which dental science and its professional practice will continue

to alleviate the sufferings, and enlighten the conscience of mankind ten years hence. Dental education, journalism, commercial relations, patent laws, etc., will all undergo a process of change that shall bring them into more harmonious relations.

Another dreamer, a member of the Southern Dental Association, fancies a permanent home for that association, located on the top of one of the high mountains of Georgia, Tennessee or North Carolina, where the pure air will prove an alluring invitation to the weary practitioner, and where he may go and lay aside the vexations and burdens of his daily avocation to enjoy, not only the pure air and wholesome food, but can have the privilege of pursuing any scientific investigation dear to his heart, with the aid of a complete library, museum, and experimental laboratory.

At the last meeting of the American Dental Association the president of the association, and the chairman of the section on Dental Education, also related visions of a uniform dental law regulating the practice of dentistry in all States, the establishment at Washington of a dental museum and library, and the organization of a national university with power to confer a special degree for superior scientific attainment.

Then there is the dream that so constantly and tenaciously occupies the great mind of our vigorous and emphatic western friend who is looking forward anxiously to the time when he shall free the dental profession of all avaricious patent-right speculators, and after buying all legitimate patents, hold them for the use of members of the Dental Protective Association.

But the latest, and one of the best, comes from the east in the announcement that a prominent member of the profession in New York City has generously offered to contribute five thousand dollars toward the establishment of a dental club. Not as a convenient place for idling away precious time over a game table, or in idle conversation with its usual pernicious accompaniment; but this idea contemplates a commodious building with apartments containing a dental museum, library, and laboratory fully equipped for carrying on investigations in all kinds of scientific work that has a bearing on dental practice. The plan also con-

templates rooms for holding meetings of dental societies, and for giving clinics.

The consummation of this design will give a greater stimulus to the tendency and hope of dentists to become truly scientific men, and to place their profession on a scientific basis than all the discussions ever held on the subject of dental education.

But speaking of dreams, let me outline another, not the result of a stomach overloaded with indigestible sweet-meats, but probably traceable to the above outlined visions of the wise men of the east, south, and west.

If it is good for New York, Atlanta, and Washington to provide homes for their respective society gatherings, and places for professional culture, why should not the great State of Ohio with its wealth of men and brains have a place of assembly at some central and accessible point providing facilities and accommodations of library, museum, and laboratory for advanced work in all branches of professional attainment? No argument need be made to illustrate the benefit of such a provision, and none is necessary to demonstrate conclusively the demand for such an institution, certainly not to those that are connected with dental colleges where almost every mail brings a letter of inquiry from some practitioner as to the facilities afforded for post-graduate work in various lines of scientific investigation.

Now that the Ohio State Society has returned to Columbus for another meeting is it not a fitting time and place to discuss this subject and determine whether some plan can not be devised which shall accomplish this object? Would not the city of Columbus, with its central location, its capital and city advantages, furnish an acceptable place for locating a permanent home of this character for the State Society? If there is no Bodecker in Ohio to inaugurate this enterprise, there is nothing to prevent the organization of local societies in every county or large city (with the idea of increasing the membership of the State Society by making each local society auxilliary to it), and extending to the members of such societies all the privileges of the State Society including the use of library and laboratories, the State Society exacting a *per capita* assessment from all such societies to be

used in supporting and carrying on its work. If it is impracticable to purchase property and erect a suitable building, the collection of the library and museum could be commenced at once and a building fund could be started. In the mean time such a building or rooms as are needed could be rented, and the work practically organized. If this were done and a competent man to put in charge could be found, who would be willing to undertake the work at a small salary, and devote his entire time and energy to the organization of local or auxilliary societies; collecting and tabulating his work, and publishing the same in a journal conducted by the society; assisting and counseling post-graduate students, and original investigators; arranging with specialists for courses of lectures at stated intervals to classes of post-graduate students; collecting and classifying the museum and library, and making it available for investigators; and with the assistance of a committee appointed for the purpose a programme could be made out embracing suitable work to be done by each auxilliary society, and once each year the whole compiled into a report to be read and discussed at the annual meeting, taking the place of the heterogeneous programmes usually presented at society meetings. If this were done the profession in one State, at least, would be doing for its members a work that would bring great honor to it, and the latent talent now peacefully reposing in its members would be aroused, and Ohio would produce more Atkinsons and Millers. There is no great difficulty in inaugurating some such plan on the plea of expense. The fees from post-graduate students would pay the rent of the rooms and assist in furnishing them, and there are certainly 1,000 or 1,500 dentists in and out of the State who would subscribe to a good live dental journal where they know that all its profits go to the support of such an institution, and this, with the annual dues of members would furnish all needed income. There are fragments here and there in the libralies and closets of dental practitioners that would soon find their way into the State library and museum. By such an undertaking the society would commend itself to the consideration of professional millionaires, and gifts of money would fall to it, and possibly some recognition would be

taken by the State Government of a substantial character. And so by gradual accumulation the rolling stone would gather sufficient moss for the erection of a substantial habitation.

Hypnotism.

BY J. R. CALLAHAN, D.D.S., CINCINNATI, O.

Read before the Ohio State Dental Society, held at Columbus, October, 1890.

One can scarcely read a daily newspaper now days without seeing article after article devoted to hypnotism, wonderful, and at the same time ridiculous, are many of the statements made, all seeming to try to establish the idea that there are persons possessed of some wonderful or divine power over their fellow men. All this confusion is the result of the unfortunate birth of this phenomenon. It fell into the hands of men who were neither capable nor inclined to give it that careful and scientific examination that it deserved.

The terms animal magnetism, mesmerism, clairvoyance, and hypnotism have been used to designate nervous conditions in which the body and mind of an individual were supposed to be influenced by a mysterious force emanating from another person. With the exception of mesmerism, a name given to the phenomena in honor of one of the earliest investigators, F. A. Mesmer, each of those items implies a theory. The phenomena of animal magnetism were supposed to be due to some kind of magnetic force or influence peculiar to living beings and analogous to the action of a magnet upon steel or other metals.

Clairvoyance implied a power of mental vision or of mental hearing or of a mental production of other sensations by which the individual became aware of events happening in another part of the world from where he was, or could tell of the existence of objects which could not effect at the time any of his bodily senses.

Hypnotism was a name applied to a condition artificially produced, in which a person was apparently asleep, and yet acted

in obedience to the will of the operator as regards both motion and sensation.

The power to influence the bodies and minds of others has always attracted much attention and has been sought after for many purposes. We find that whilst not a few have investigated these phenomena in a scientific spirit, more have done so as quacks and charlatans who have thrown discredit on a subject of deepest interest. Recently physiologists and physicians have set about such investigations of the subject as to bring it down into the domain of exact science, and to dispel the idea that the phenomena are due either to any occult force or to supernatural agency. It seems to have been the belief in all ages that the touch, or laying on of hands of certain persons had a healing effect. This power it was supposed for a long time was lodged in priests, and therefore was supernatural and connected with religion.

Frederick Anton Mesmer was born May 23, 1733. He studied medicine at Vienna, took a degree and began practice. Interested in astrology he imagined that the stars exerted an influence on beings living on earth. He identified the supposed force first with electricity, and then with magnetism. He began treating disease by stroking the body with a magnet. In 1766 he observed a priest that produced the same effect without the magnets by manipulation alone. This led Mesmer to discard the magnets and to suppose that some occult force resided in himself. He moved to Paris in 1778, and soon attracted great attention by the effects of mesmerism. Appreciating the effects of mysterious surroundings, he had his consulting apartments dimly lighted and hung with mirrors, strains of soft music occasionally broke the silence, odors were wafted through the room, and the patients sat around a kind of vat in which various chemical ingredients were concocted, or simmered over the fire. Holding each other's hands the patients sat in expectancy. Then Mesmer clothed as a magician glided amongst them, affecting this one by a touch, another by a look, by making passes, etc., etc. He finally fell into discredit and left Paris, and died in 1815.

The use of such methods as Mesmer's were, are used upon

the theory that the operator possesses some supernatural power, or that some invisible fluid or influence is given off by the operator that overcomes the patient. The charlatans who travel about the country giving exhibitions usually use some such method, oftentimes adding mysterious gestures and actions to add to the mystery, all of which only proves either ignorance or a desire to deceive.

Dr. H. Bernheim, Professor in the Faculty of Medicine at Nancy, who has given us one of the best works extant on this subject, under the title of *Suggestive Therapeutics*, says: That the whole explanation lies in suggestion, that is, in the influence exerted by an idea which has been suggested to, and received by the mind. I will give Dr. Bernheim's methods of hypnotizing as briefly as possible. He says: I begin by saying to the patient that I believe benefit is to be derived from the use of hypnotism, that it is possible to cure or relieve him, that there is nothing hurtful or strange about it, that it is an ordinary sleep or torpor which can be induced in every one, and that this quiet, beneficial condition restores the equilibrium of the nervous system, etc. If necessary I hypnotize one or two subjects in his presence in order to show him that there is nothing painful in this condition, and that it is not accompanied by any unusual sensation. When I have thus banished from his mind the idea of magnetism and the somewhat mysterious fear that attaches to that unknown condition, above all, when he has seen patients cured or benefitted by the means in question, he is no longer suspicious, but gives himself up; then I say, look at me and think of nothing but sleep, your eyelids begin to feel heavy, your eyes tired, they are getting moist, you can not see distinctly, they are closed. Some patients close their eyes and are asleep immediately. With others I have to repeat, lay more stress on what I say and even make gestures, it makes little difference what sort of gesture is made. I persuade him to fix his eyes on mine, endeavoring at the same time to concentrate his mind on the idea of sleep. I say, your lids are closing, you can not open them again, your arms feel heavy so do your legs, you can not feel any thing, you see nothing, you are going to sleep, and I add in a commanding tone,

sleep. This word often turns the balance. I use the word sleep in order to obtain as far as possible over the patients a suggestive influence which shall bring about sleep, or a state closely approaching it, for sleep, properly so-called, does not always occur. Finally, after the eyes close I keep repeating the suggestion, your lids are stuck together, you can not open them, the need of sleep becomes greater and greater, you can no longer resist. I lower my voice gradually, repeating the command, sleep, and it is very seldom that more than three minutes pass before sleep, or some degree of hypnotic influence is obtained. It is sleep by suggestion, a type of sleep which I insinuate into the brain.

This brief extract from Dr. Brenheim's method does not by any means cover all cases. I give this much of this modern method to show that the mask of hypocrisy and pretension has been taken from this phenomena, and that hypnotism is being practiced upon an apparently sound basis, and is no longer one of the curiosities of science.

The condition of the patient under the influence of hypnotism is seemingly normal, in some cases there is an acceleration of the cardiac and respiratory movements, this, however, can be accounted for from the fact that the patient is always more or less excited when they submit to an operation of any kind for the first time. In patients who have been hypnotized a number of times, the action of the heart and lungs remains natural according to the best authorities.

As to who, and what per cent. of people can be brought under this influence, M. Siebault gives us the best statistics. In 1880, he hypnotized 1,012 persons. From his figures it appears that the proportions of subjects that can be hypnotized are about the same in men as in women, viz., 18.8 per cent. in men, 19.4 per cent. in women. A striking point in this table is the great proportion of subjects in children and youths of the ages from 1 to 7 years, 26.5 per cent.; of the ages from 8 to 14 years, 55.3 per cent. were successfully hypnotized. In old age the number decreases, but always remains at the relatively high figure of 7 to 11 per cent.

Of what practical benefit is this phenomena is a question that I can not answer in one short paper even if I possessed the knowledge to do so. It has been used successfully in many cases of organic diseases of the nervous system, hysterical diseases, neuropathic affections, rheumatic affections, etc.

Its application to dentistry has, so far, been very limited, because it has been the aim of dentists to produce an entire insensibility to pain. This has been done only in a small per cent. of cases. It has been almost impossible to bring the patient to the anæsthetic condition while he has the idea of an operation before him. Along with the many failures in this respect we have many very successful surgical operations reported where hypnotism was the only anæsthetic employed. Among others Drs. Reibold and Kiaro, dentists, as far back as 1847, removed a tumor of the jaw, painlessly, while the patient was under hypnotic influence, but as said before, hypnotizing generally fails with persons disturbed by the expectation of an operation.

In my opinion, careful investigation on the part of the dental profession would soon develop methods that would prove highly beneficial, but who is going to undertake such a work in the face of such strong public prejudice as exists to-day in regard to this subject? It amounts to superstition. If a dentist was known to be a professional hypnotist the public would at once put him down as a fanatic, a crank, a spiritualist, an infidel, and all that follows in that line. So a man who cares for his reputation has to keep rather quiet on such a subject. Then, too, there are dangers connected with the unskillful and dishonest use of this phenomena. After having been hypnotized a certain number of times, some subjects preserve a disposition to go to sleep spontaneously at most inconvenient times, others are too easily susceptible to hypnotization when they have been too often subjected to it. Such susceptibility is the real danger. This unpleasant tendency can, and should, be controlled by the skillful and sincere operator by suggestion.

An ordinary office practice is too limited a field, and in other ways an objectionable field in which to carry on the investigation

of the subject. The large clinics at our dental colleges would be the proper place for such work.

May I express the hope that soon we may have some reliable information on this point from the source indicated?

A Means of Holding the Rubber Dam while Operating upon Cavities in Labial and Buccal Surfaces.

BY C. R. BUTLER.

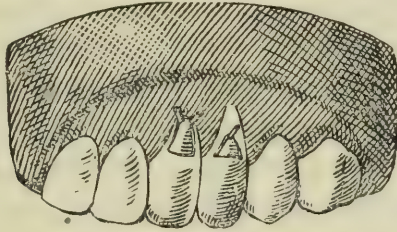
Read before the Ohio State Dental Society, October 29, 1890.

A great number and variety of clamps and other devices have been tried and used by operators, but in many cases to the very great discomfort of the patient. And when there is a high degree of sensitiveness of dentine there is oftentimes very great pain, and sometimes almost beyond endurance. Even if the clamp remains steady after being placed in position, it is not always possible to carry the rubber dam over it. Most operators are able to reach ordinary cases, but the question is how to reach the desperate ones that are occasionally presented. It is to this last variety of cases that I propose to call attention for a short time, and if a method can be suggested to overcome this difficulty, then a long step has been made in securing labial surface cavities against moisture while being filled.

The illustration here presented is from a case in practice which came under my hands about a month ago. Several fillings of cavities of this kind had been made by other operators, and more was needed. The patient expressed much dread of the clamp, but when told that the clamp would not be used said, "well, I can stand any thing else." In this case I put in two small screws, as shown in the cut. One is quite sufficient in most cases.

If the drill is nicely gaged to the screw wire the screw will become firmly attached even in a shallow. Set the screw as near the border of the cavity as may be, and this should be done before the excavation of the cavity. The screw should be set

sufficiently distant from the border to avoid the liability of checking the dentine. After the filling is introduced the protruding portion of the screw is cut off and finished upon the surface as a small filling would be. I prefer the hand drill. Never use a screw tap. Let the thread upon the wire be sufficient for cutting its way into the dentine.



The iridio-platinum or gold wire is hard enough to cut its way into the tooth bone, and the smallest size wire made is the best for the purpose. The small drills made by the S. S. White Dental Manufacturing Co., with limit shoulder, are the safest for the operator if he is not able to make them himself. After having introduced the screws, place the dam on the tooth, slipping its edge over these screws before beginning to excavate. It is well to dip the end of the screw in phosphate cream with a trace of creosote added when ready to put it in place.

The illustration accompanying this will illustrate the principle and mode of procedure without further description.

DISCUSSION OF DR. BUTLER'S PAPER.

Dr. J. Taft: The clamps of various patterns devised for application to cervical cavities are rather unsatisfactory, in the main. I have been agreeably surprised to discover how admirably the set of clamps devised by Dr. Delos Palmer fulfill their purpose. They are easily applied and retain their grip upon the teeth without discomfort to the patient and without causing the operator apprehension of their slipping off. I have discarded all the ordinary forms of clamps in favor of this set. My only regret is that I did not long ago examine and discover their excellence. The set is rather expensive [\$25.00 (?) Rep.] but I would not be willing to dispense with them for twice or thrice their cost.

Dr. Jennings: The set contains the only wisdom tooth clamp; good for any thing.

Dr. Taft: I have been really surprised to find how well they fit teeth differing in size in different mouths. This method of using screws devised by Dr. Butler, is perhaps good in many cases, but particular care would need to be used to avoid breaking or checking the thin edge of enamel between the screw itself and the cavity's border.

Dr. Fletcher: I have often had difficulty in adjusting the rubber dam properly in preparing to fill cervical cavities. If the dam be forced up high above the edge of the cavity it will often leak at the sides. That I frequently succeed in controlling by wiping into the cavity a little dry plaster of Paris, using a piece of spunk to push it under the edges of the dam where leakage occurs. The moisture combining with the dry powder makes in a minute or two a further barrier to the inflowing secretions.

Dr. H. A. Smith: I think we sometimes become so prepossessed in favor of the dam that we forget all about what is often perfectly practicable in such cases—that is, to dispense with the dam, depending upon simpler means. These cavities frequently can be kept dry long enough with a napkin, or by other means to enable us to fill them perfectly. I often use a holder in conjunction with the dam, or have my assistant use it to carry the dam back and hold the gum away.

Dr. Callahan: I have very little faith in a cohesive gold filling made without the dam. I hold that even the slight danger of moisture from the breath is enough to imperil the cohesive properties of the foil. (Applause). For extreme sensitiveness of these labial cavities I moisten the cavity with an aqueous solution of nitrate of silver; let it go a week or two, when it can be excavated with but little pain. I have been using for some time Dr. W. S. How's cervical border clamp, which accomplishes its purpose admirably.

Dr. Sage: I have experimented to a limited extent with a device which I will try to describe. I draw the temper of an ordinary steel pen, or a three nought [000] file handle will do, then I cut from this a strip a line or two wide, and half or

three-fourths of an inch long. I bend this into the shape of a letter U, having first sharpened carefully the middle third of the strip, along one edge. Then restore the temper and polish the inner side so that it will reflect the light. Now take a cavity, labial, in an upper incisor. Having adjusted the dam over it and adjoining teeth, I use the upper curved end of the U to push the dam back (and the gum with it) fully exposing the cavity to view. Press the sharpened edge slightly against the cementum of the root, press over the edges of the teeth a good sized piece of impression compound sufficiently softened for the purpose, and while holding the "crib" in place, work the compound around it, so as to hold it. By pressing the sharpened edge of the crib slightly against the cementum with the thumb of the left hand, while the fingers are holding the impression compound in place, you can burr out the cavity thoroughly and at your leisure, and with no risk of tearing the dam or of wounding the gum. The crib itself excludes seeping moisture while the dam prevents a general flooding.

Dr. Jennings: Many of these labial cavity fillings fail because they are not properly finished. Use stones, disks, burnishers, and so on with the right-angle instrument so as to reach all parts of the filling and finish very thoroughly. For retaining the everted edges of the dam in place use powdered rosin on the tooth.

Dr. Miles: To accomplish that purpose I use a heated punch for making the holes in the rubber. This leaves a gummy edge to the hole so that it retains its position when once turned back.

Dr. Jennings: The objection to the hot punch is that it makes the rubber rotten, so that you can not tell at what moment your dam is going to tear.

[SUBJECT PASSED].

CAMPBOR A SOLVENT FOR IODOFORM.—Camphor increases the solubility of iodoform in alcohol and ether. While one hundred parts of alcohol ordinarily dissolve not more than one and one-fourth parts of iodoform, the same amount of a saturated solution of camphor is capable of taking up as much as ten parts.

SELECTIONS.

Physiological Action and Uses of Cocaine.

The physiological action of cocaine will be understood most easily by contrast with that of curare. The latter is well known as the type of peripheral motor-nerve paralyzers; cocaine, on the contrary, exerts its action upon the peripheral sensory nerves. They resemble each other, according to Dastre, involving only the terminations of the nerves; the nerve trunks preserve their excitability, and may even have it exaggerated. Again, while curare paralyzes the vaso-constrictor nerves within the blood-vessels, cocaine, on the contrary, excites them.

Cocaine in small doses appears to act as a general stimulant, producing a feeling of exhilaration, with an increased flow of speech, wakefulness, and a more rapid development of ideas, without, however, increased capacity for brain work. In this respect cocaine resembles morphine by contrast with caffeine. The heart and respiration are accelerated. In larger doses it causes slight dimness of vision, a feeling of tension and constriction of the forehead, with perhaps slight headache, dizziness, and great restlessness. The latter symptom is due to hyper-excitability of the muscles, and is explained by the condition of the nerve trunks. In still larger doses the effect of cocaine in constricting the blood-vessels is evidenced by coldness of the extremities. The rise in blood-pressure which occurs is due in part to acceleration of the heart's action.

Respiration is accelerated by cocaine, while under poisonous doses it becomes embarrassed and shallow, and stops before the heart. The pupil is dilated through stimulation of the sympathetic system. General analgesia develops only late and under poisonous doses, so that it is of no clinical importance.

Toxic doses of cocaine produce, in some cases, death preceded by collapse, cyanosis, and convulsions, the respiration especially being affected. In some cases the patient becomes very restless and loquacious, the speech is thick, and the sentences unfinished, the mouth and throat dry, the patient is giddy and staggers on attempting to walk, and is covered with a cold, clammy sweat

In some cases collapse and unconsciousness have developed speedily, and have been succeeded by active delirium. Autopsies in fatal cases have demonstrated the presence of cerebral and visceral congestion, especially of the kidney.

Prolonged use of cocaine has resulted in chronic poisoning, and in the production of the "cocaine habit." The former is said to be characterized by great excitement, hallucinations chiefly of sight and hearing, and great weakness of the lower limbs almost amounting to paresis.

Cocaine is used in medicine and surgery principally as a local anæsthetic. The limits of its applicability have not yet been determined. It is most serviceable, however, when applied to the more delicate mucous membranes, such as those of the eye, nose, urethra, and vagina, where the peripheral sensory nerves are close to the surface, and from which absorption is rapid.

Space will not permit a detailed mention of all the cases in which cocaine can be used; in general it may be said to be wherever the irritated nerves can be reached, whether exposed in a hollow tooth, or bared by cancerous ulceration, as in the breast. Hypodermically it has been used with more or less success in the extraction of teeth, the opening of buboes, the excision of small tumors, to prevent the pain caused by iodine when thrown into the tunica vaginalis for the cure of hydrocele, and in various other minor surgical operations. It forms a useful addition to soothing ointments, such as those for acute eczema, or for pruritus.

Its property of contracting blood-vessels, and drying mucous membranes makes it especially serviceable in acute coryza. It is most effective in the congestive (first) stage, but even when there is a profuse watery or mucous discharge, it gives more relief than any other remedy. A watery solution should be used, and eight or ten drops of a four or five per cent. solution may be snuffed up each nostril as often as the necessities of the case demand.

Internally cocaine has been employed to check vomiting, and in some cases with great success. Gastralgia has also been relieved by it.

In what has just been said an effort has been made to point out the most important physiological actions of cocaine, and to

suggest the classes of cases in which it is likely to prove useful, rather than to enumerate the separate affections in which it may be used. Whenever it is used, it should not be forgotten that cocaine is as much a poison as morphine or strychnine, and that, being more uncertain in its effects, it should be watched with more care. It would seem to be most dangerous to nervous patients with weak hearts.—*Med. & Surg. Reporter.*

The Relation of Syphilis to the Practice of Dentistry.

The number of recorded cases of communicated syphilis occurring in the practice of dentistry are relatively few compared to the other innocent channels through which it has been acquired; still there are sufficient cases on record to show that it has frequently occurred. In the enormous majority of instances syphilis is acquired by sexual intercourse, because here is offered the greatest opportunity for abrasions to occur, through which the poison may gain entrance. But on the other hand, hundreds, or even thousands of physicians and midwives have contracted syphilis in the practice of their calling. A striking illustration is found in the history of eustachian catheterization, where as many as sixty cases were traced to one person.

For the entrance of the syphilitic virus a broken epithelial or epidermal surface is necessary, although apparent exceptions to this rule have been occasionally met. In some way the virus must come in contact with the absorbing elements of the body, either blood vessels or lymphatics, and by them be taken into the circulation where it increases and manifests its lesions in different parts of the body. When once the virus has gained entrance the individual is syphilitic.

The virus may be received from four different sources. *First.*—From the initial sore or chancre. *Second.*—From mucous patches. *Third.*—From syphilitic ulceration. *Fourth.*—From the blood. The second source of contagion, namely, mucous patches, is the one to be careful of in dental practice. At one time or another these lesions appear to a greater or less extent on the buccal mucous membrane of almost every syphilitic

person. Mucous patches are slightly raw surfaces of various sizes and shapes, which are at first slightly elevated, and then may become depressed by the loss of epithelial covering. When newly developed they are redder in color than the normal mucous membrane, but later may become grayish-white.

We will now mention a few cases reported. A gentleman in September, 1884, visited a physician, Dr. L. D. Bulkley, of New York City, to see him about what he thought was a cancer on his tongue, but which proved to be a chancre, the characteristic syphilitic eruption following shortly after. About a month previous to his calling on Dr. Bulkley, he had had some dental operation performed, and he said he remembered that the instrument occasionally slipped, and his tongue was injured. The dentist did not appear very clean or particular about his instruments. As he was a married man no other cause could be found by which he could have become affected. Sir William Watson published a case of this description and John Hunter relates two similar cases, about which there can be no doubt. J. C. Lettson has recorded three cases.

Dr. C. W. Dulles, of Philadelphia, reports a case which was also seen by the late Dr. Maury. The patient, a female domestic of excellent character, developed a chancre of the lip two weeks after a visit to a dentist, who on that occasion extracted a tooth, and later did some cleansing of the teeth. Although the case was hard to confirm it seemed reasonable to suppose that the operation was in some way responsible for the inoculation.

Dr. F. N. Otis, also mentions a chancre of the lip which occurred in a gentleman about three weeks after a visit spent in a dentist's chair; Lancereaux relates a similar case of chancre of the lower lip of a woman after extraction of a tooth and other dental work; and Giovannie, of Bologna, has reported a chancre on the lip from a dentist's instrument; Leloir mentions one from the same cause; Lydston has likewise reported a case of a woman with syphilis, the chancre having developed three weeks after having some cleaning and repairing done to her teeth; Roddick, of Montreal, reports a very interesting case—the patient was the wife of a physician and the mother of healthy children. She became infected while having a tooth extracted.

There are also a number of reported cases where the dentist was the one to suffer, having become inoculated while operating for syphilitic patients; some receiving the virus through an abrasion on the finger, others by scratching the skin on a sharp tooth, or by being bitten by the patient.—*The Dental Mirror*.

A Sound Body First.

DANIEL CLARK, M.D.

The full-limbed and chubby-faced baby who squalls and kicks with vigor, and eats enormously as it performs gymnastics on its mother's lap, is the picture of physical health; but its feeble and semi-fluid brain grows slowly, as it is needed but little at this stage of automatic life. The brain gets behind in the race of life until the muscular system develops somewhat, and thinking is needed for self-preservation. This conservation of brain force is a wise provision when taken in conjunction with comparative growth and decay. It enables us to possess vigorous brains and strong minds long after our knees are becoming weak, our hands showing signs of shakiness, our shoulders having a stoop in them and we begin to gravitate bodily toward the earth from which we sprang. As age creeps on, waste is getting the better of repair. In work there is not only a holding of the fort, but also an extension of its defences, hence the greater demand for building-up material. The boy has to grow. Mental over-strain in youth and manhood is becoming a peril to the more civilized races. This malign influence of undue mind friction, and which begins in our schools, will have its full friction in national deterioration and decay. Vice, lust, and moral corruption are largely found among the mentally defective classes. The nervous, over-strung, over-tense brain in one generation means low mentality, or ill-balanced minds in the next. This is nature's inexorable law. The only hope there is lies in the fact that the weakest go to the wall.—*The Phrenological Journal*.

Bacteriology Run to Extremes.

The *Medical Record*, August 30, 1890, says editorially: Is it not about time to halt a while in our restless search after the microscopical accompaniments of certain diseases, and pause to consider what we are accomplishing, and whether there is not some danger of becoming men of one idea, narrow to the extreme in our conception of what disease actually is, and of how we ought to combat its ravages. It may be that we are not different from other men, yet it would seem as though medical men might be justly called the Athenians among men of science, in that they "employ themselves in nothing else, but either in telling or in hearing some new thing," and when they have found that they let every thing else go and cling to that alone. It is thus with the study of bacteriology. It has been ascertained almost to a certainty that the tubercular process, for example, is associated with a certain form of microscopic growth which is not found as an accompaniment of other diseases. It is therefore assumed, correctly no doubt, that this micro-parasite is the cause, either directly or indirectly, of tuberculosis. Other microbes have been found in relation with other diseases, and it has also been assumed that a causal nexus exists. This is well enough, it is a plausible theory, and one that offers great hope of advance in the therapy of certain diseases, and if it does not blind us to the actual necessities of treatment and lead us to neglect the plain indications while running after some specific microbicide, there is no objection to its further study and amplification. But here is where the tendency of mankind, in general, and seemingly of the medical profession, in particular, to ride a hobby to death betrays itself. Some are not satisfied in accepting what has already been proven, but they must assume what remains to be, and which probably never will be proven. They look for the bacillus in every departure of the human organism from health, and they run a serious risk of making themselves, as well as the science which they study ridiculous. Not long ago it was gravely announced in an Italian journal that some one had discovered the bacillus of old age. Of course that was

intended as a joke, but so ready at the present day are some minds to see the infinitesimal in pathology that not all could see the joke, and several medical papers reproduced the item containing the announcement of the great discovery in all seriousness, never for a moment seeming to see in it any thing but the most natural discovery, and one that would explain many of the lesions found in those of advancing years. But there are other things put forward in good faith which are almost as ridiculous. Not long since a Russian investigator examined the water obtained from melted hailstones and found it to contain several varieties of bacteria. There was nothing very remarkable in this discovery, for it would have been strange had no bacteria been found, but what was remarkable was the conclusion which the man drew. He thought it very probable, since rain, snow, and hail had all been found to contain micro-organisms, that there was a specific, and hitherto undescribed, disease to which only those were liable who had been exposed to a storm and had been wet to the skin by water containing these peculiar bacilli. It is not the search after microbes that is absurd, but the conclusions which many run to without first establishing their premises. We are not yet in position to assert that there can be no disease without its specific micro-organism, and those who do so maintain are in danger of making their science a subject of ridicule to men whose range of vision extends beyond the microscope field. They also interfere with therapeutic progress by turning men's minds away from the phenomena of diseased action and hunting after an invisible foe, which may after all be found to have less power for evil than it is now credited with.

A CEMENT for slides holding preparations in glycerine is prepared by Dr. S. Apathy (*Zeitsch. Wiss. Mikr.*) by melting together equal parts of Canada balsam and paraffin (60° melting point), and continuing the heat over a moderate flame until terebinthinous vapors are no longer perceptible, and the mixture has assumed a golden yellow hue. The mass, hard when cold, is applied by first melting again.

Improved Hypodermic Syringe—Aseptic Syringe.

In the *Medical and Surgical Reporter*, Sept. 28, 1889, Dr. J. J. Thomas, of Youngstown, Ohio, described a new method of administering hypodermic injections, and in a recent number of the *Reporter*, he calls attention again to his method which has met the approval and recommendation of no less an authority than Dr. John B. Roberts, the well-known Philadelphia Surgeon and Professor of Surgery in the Woman's Medical College, who has styled the syringe and suggests that it be named the "Aseptic" injector. We append here the description :

Take the rubber or bulbous portion of an ordinary medicine dropper, using care to select one of some strength and firmness. Insert into its open end the proximate extremity of a hypodermic needle. The fitting is not expected to be close, but can easily be rendered air tight by a few turns of thread, or preferably, a fine rubber band—Faber's No. 10 is strong enough. Now compress the bulb to flatness to expel the air, and dip the needle-point into some water, release the pressure upon the bulb, and it fills with water in the space of twenty-five or thirty seconds. Now by pressure discharge the water into a teaspoon, add your tablet, make the solution and draw it up again into the bulb, and you are ready for injecting. Pinch up a fold of the skin in the ordinary manner, thrust in the needle and deliver the injection by firm pressure upon the bulb, holding it tranversely to the tips of the fingers. The first filling of the bulb and discharging into a spoon is merely to measure the exact capacity of the bulb, and to leave no space for air, though the admixture of a minute quantity of air would not be in the least degree harmful, unless injected into a vein. Practically no air enters, and an objection upon this ground will speedily disappear under a fair test.

The method which I have now employed for a year and a half is, of course crude, and the instrument far from as perfect as it is capable of being made. A well-known instrument maker of Philadelphia is about to manufacture a syringe upon the principle in question. The bulbs will be of two sizes—fifteen and thirty minims. The idea of a screw fitting between the bulb

and needle will be abandoned as unnecessary. The needle will be made with a rounded extremity precisely like the glass tubular portion of the medicine dropper, and over this the open extremity of the bulb will fit tightly. A small glass, or porcelain dish, or cup, will be a part of the outfit of exactly the same capacity as the bulb, so that the solution can be made without any preliminary measuring. The bulbs will be made strongly, and of the best quality of rubber. They should fill in ten seconds or less. With the injector carried in my buggy-case I can readily be prepared to give an injection within the short space of two minutes. This includes the fastening of the needle and the twice filling of the bulb. Surely this is sufficiently speedy, but by the help of the instrument maker the time will be greatly lessened. For my part, even if the instrument manufacturers fail to perfect the idea, I have parted company with the ordinary hypodermic syringe. Mine cost fifty-five cents each and give every satisfaction. Others cost from two to three dollars each and are soon out of order. My experience can be made that of any practitioner who will take an interest in the matter, and who will not allow his own lack of skill in its use to lead him into condemnation of the method.

Now, to sum up; the following are the claims made for the crude apparatus in use by myself: 1. It is simpler in construction than the ordinary syringe; hence, more reliable as it never gets out of order. There need be no leakage. It works as well after one or two months of non-use as if used daily. 2. Its cheapness; the cost being about one-third that of the usual instrument, when provided with two needles. 3. Its effectiveness; it accomplishes all that any other contrivance designed for the same purpose will accomplish, with the single exception of being used as a means of injecting ether. Contact with the latter soon destroys india rubber. 4. It affords a means of rendering the delivery of a hypodermic injection in an aseptic manner. The bulbs are very easily cleansed, and easily kept clean. The likelihood of the concurrence of abscess from any thing introduced from without is reduced to a minimum.

Oliver Wendell Holmes "De Senectute."

The present age is remarkable, among other things, for the physical and intellectual vitality of its old men. It is not only that—thanks to the advance of medicine, preventive and curative—we have more old men among us than formerly, but that, so far from lagging superfluous on the stage of life, the veterans continue to play most of the principal parts with all the ardor and sometimes more than the versatility, of youth. In all departments of modern life—in politics, in the church, in the army, in science, and in literature, we see men whose years are far beyond the psalmist's limit predominate not only in influence and reputation, but in the amount and quality of their actual work. Among the octogenarians on whose mental brow time writes no wrinkles, none is more interesting to medical men than the genial "Autocrat" of so many hearts both in England and America, whom, in spite of the poet's days which he wears so gracefully, we are proud to claim as a professional brother; Oliver Wendell Holmes, who celebrated his 81st birthday on August 29, is still one of the most vivacious of men; age can not wither the freshness of his interest in life, nor deaden the cheerful sparkle of his style. Even of "crabbed age" and the inevitable sorrows and bereavements which it brings with it, he writes with an easy wit, quite untinged with cynicism, which *circum praeecordia ludit* and brightens the dismal subject so as to make it amusing to his fellow-sufferers. From the purely medical point of view his account of his mode of life is instructive as well as interesting. For a long time back, he says, he has taken extreme care of himself. Never robust, he was still wiry in his earlier and maturer life; but since he reached the age of 80 his hygienic vigilance is unceasing. The rooms which he daily occupies are equipped with barometers, thermometers, ærometers—with every kind of instrument, in short, to prevent his incurring the slightest risk of taking cold. As pneumonia is the deadliest foe of old age, he does his utmost to keep it at a distance. He never gets up during winter until he knows the exact temperature, or takes his bath without having the water accurately

tested. He lives by rule, and the rule is inflexible. His time is scrupulously divided—so much allotted to reading, so much to writing, so much to exercise, so much to recreation. His meals are studies of prudence and digestion. He understands the specific qualities of all ordinary foods, and never departs from the severest discretion in eating. To this strict hygienic discipline Dr. Holmes attributes his good health, and the retention of his mental vigor.—*Brit. Med. Journal.*

To Save the Edge of Sterilized Instruments.

TO THE EDITOR.

Sir: While attending Prof. von Bergmann's surgical clinic at Berlin recently, the following demonstration was made, which will certainly interest your surgical readers.

To render instruments perfectly aseptic, and to preserve the cutting edges from oxidation, they are boiled for five minutes in a one per cent. solution of carbonate of soda. They can remain in this solution indefinitely without rusting or dulling the cutting edge. When required for operation they are taken out, dried with a sterilized piece of gauze, and handed to the operator. Whenever, in course of the operation, they come in contact with any thing not aseptic, all that is required to re-sterilize them, is to dip them for a few seconds into the boiling solution of sodium bicarbonate.

Yours truly,
Philadelphia.

JOHN S. MILLER, M.D.

EDITORIAL.

A Case of Impacted Third Molar.

November 1st, 1890, Mrs. P. presented herself for examination of an abscess, as she supposed, in the vicinity of the third superior molar of the right side.

The patient, thirty years of age; good health; good constitution. The mouth and teeth in a good condition except a fitulous opening on the outside of the gum just back of the second molar,

about two lines above the margin of the gum. The mucous membrane of the entire mouth seemed very healthy, entirely up to the margin of the fistulous opening. There was no swelling ; a mere trace of pus with a slight flow of serum.

The history of the case is about as follows : A little more than a year ago a slight enlargement occurred on the jaw opposite the normal position of the third molar. This was of slow growth, its greatest prominence not more than a line and a half, and its base diameter perhaps three lines. There was scarcely any soreness, and really no pain. After being in this condition about ten months it was examined by a dentist and by a physician ; the latter suggested opening what was supposed to be an abscess cavity, and so, about two months ago an opening was made into it with an ordinary bistoury. There was little or no pus, but a small flow of what seemed to be serum. The cavity was washed out from time to time with various preparations, and during this time it became somewhat painful, though not seriously so. Some disturbance occurred about the roots of the second molar, though not enough at any time to prevent its use in mastication. A few weeks ago a small fungous seemed to spring from the orifice of the fistulous opening. This, however, was cut away and nothing of the kind has reappeared. As to the cause of the trouble neither the dentist or physician who examined it ventured an opinion. Though there had been but little pain or discomfort the patient and her husband manifested a good deal of anxiety about the case. In order, if possible, to ascertain the true condition an examination was made, and an impacted third molar was found situated about six lines above the margin of the orifice, with its crown leaning anteriorly against the posterior surface of the second molar. After ascertaining its position and knowing the healthy condition of the tissues round about, taking into account the health and vigor of the patient and the liability of injuring or displacing the second molar in an attempt to extract ; it was decided not to remove the

third molar, at least not till there should be indications of more serious trouble than has as yet appeared, and it was suggested to employ no treatment except such as may seem necessary to keep the parts entirely free from impurities. If any pus should be apparent, syringe gently with oxide of hydrogen; and if the external opening is in the condition to exclude substances from the outside, and there is no more discharge than hitherto, simply let it rest. This is a case in which an immediate operation is not indicated, and probably taking all the conditions into account, never will be. If, however, it should prove a more serious offence, it can be at any time as well removed as now.

Northern Ohio Dental Association.

The forty-second annual meeting of this body will be held at Oberlin, O., at the Y. M. C. A. Association Building, Tuesday, May 12th, 1891, at 10 o'clock A. M., continuing three days. A very interesting programme has been prepared, embracing the following subjects, viz:

"Development of the Teeth;" this paper will be presented by Dr. W. H. Whitslar, of Youngstown, the discussion will be opened by Dr. A. J. Dowds, of Canton; second, "The Recurrence of Decay in Teeth," paper by Dr. J. G. Templeton, of Pittsburg, Pa.; third, paper by Dr. W. H. Atkinson, subject, "Hind Sight," discussion opened by Drs. C. R. Butler and E. J. Waye; fourth, "Sanitary Condition of the Mouth, and How Best to Maintain It," paper by Dr. J. F. Dougherty, of Canton, discussion opened by Dr. W. T. Jackman, of Cleveland, and Dr. J. H. Wihle, of Canton; there will also be presented a number of voluntary papers, and incidents of office practice, etc.; there will also be several clinics in which the following will be given: "A Tin Filling with Gold Facing," by Dr. S. B. Dewey, of Cleveland; second, "Electricity Supplemented with a paper," by Dr. Frank Craeger, of Fremont, O.; third, "Melting an Ingot of Amalgam," followed by a talk on the same, by Dr. J. F. Siddall, of Oberlin, O.

This programme will be greatly enlarged between this and the time of meeting. It is to be hoped the members will bear this in mind and prepare their papers and matters as promptly as possible, and notify the corresponding secretary. The aim and effort will be to make this one of the largest and best meetings this society has ever held. An earnest invitation is extended to the dental profession throughout the State, and in the adjoining States to be present, and so far as practicable to contribute each his mite to the success of the occasion. Communications in reference to the meeting should be addressed to Dr. Henry Barnes, Cleveland, Ohio.

Aristol.

Aristol is the name of a new antiseptic introduced to take the place of iodoform, iodole, and zozo-iodole. Since iodoform has been shown by W. D. Miller, of Berlin, to be useless in the treatment of root canals of teeth, dental practitioners will naturally seek something to take its place.

Aristol was introduced into this country by W. H. Scheiffelin & Co., of New York, and is prepared by the Farbenfabriken, Elberfeld, Germany.

Aristol is in the form of a powder, which when rubbed in the hand feels like a resinous powder; being rather sticky it adheres to the flesh easily. Its color is an approach to the salmon color, and is comparatively inodorous. The freedom from disgusting odor like iodoform will make it a welcome visitor to the dental office which should not smell like an apothecaries' shop.

Aristol is a combination of iodine and thymol and is said to be very valuable. It retails at about two dollars per ounce, but weighing lightly, a small quantity will last a long time. Sixty grains will easily dissolve in one-half ounce of ether.

Perhaps the best way of using aristol is, make a solution of it in ether or chloroform, both of which readily dissolves it, and as an antiseptic, dressing it can be easily introduced, in that state, into root canals previous to filling.

Aristol is insoluble in water and will not easily dissolve in alcohol.

Oils containing fats will dissolve it. Heat will decompose aristol; so it is best to use it after the tooth has regained normal temperature after using the hot-air syringe.

This antiseptic may be especially recommended to the dental profession in the treatment of the results of actino-mycosis. It will not irritate, and is not poisonous.

The drug should be kept in dark-colored bottles, and only small quantities bought at a time, so as to insure freshness.

W.

PROGRESSIVE EXERCISE IN PRACTICAL CHEMISTRY, by Henry Leffman, M.D., Ph.D., Professor of Chemistry in the Woman's Medical College of Pennsylvania, in the Pennsylvania College of Dental Surgery, and in the Wagner Free Institute of Science; Pathological Chemist of the Jefferson Medical College Hospital.

And William Beam, M.A., Demonstrator of Chemistry in the Pennsylvania College of Dental Surgery, Associate of the Society of Public Analysts of Great Britain. Illustrated.

This little work, recently published by P. Blakiston, Son & Co., is a very valuable aid to the beginner in the study of chemical science and art. It is especially valuable in laboratory work, at least so far as it pertains to inorganic chemistry. Experimental workers find in this work much help, not only in the text, but in the illustrations as well. Much attention is given to details in regard to quantity of materials to be used, and arrangement of apparatus.

Some of the experiments and forms of apparatus are new and have been devised especially with a view to economy; a matter of importance to all.

Formulæ and discussion of purely theoretical questions have been omitted. This is a valuable little manual for all, and especially for beginners. The matter is very much condensed, but is full of instruction.

The work may be obtained of any bookseller.

Bibliographical.

A TREATISE ON THE Irregularities of the Teeth and Their Corrections, including with the author's practice other current methods. Illustrated with nearly 2,000 engravings (not embracing those in the third volume), by Jno. Nutling Farrar, M.D., D.D.S., graduate of Jefferson Medical College, Pa., and of Pa. College of Dental Surgery; member of New York County Medical Society; Medical Society of the County of Kings; International Medical Congress, IX; New York City District Dental Society of the State of New York; American Dental Association; Brooklyn Dental Society; honorary member of American Academy of Dental Science, and of Wisconsin State Dental Society; formerly lecturer in Pennsylvania College of Dental Surgery; member of the New York Academy of Science, and of the Metropolitan Museum of Fine Arts, New York.

VOLUME I,

Contains 730 pages. Some review of this work will be made in an early issue of the REGISTER.

The Micro-Organisms of the Human Mouth, the Local and General Diseases Which Are Caused by Them, by Wiloughby D. Miller, D.D.S., M.D., Professor at the University of Berlin, with one hundred and twenty-eight illustrations, one chromo-lithographic, and two photo-micrographic plates. This work has recently come to hand and will be reviewed in a more extended notice in the next number of the REGISTER.

Mississippi Valley Dental Association.

The next meeting of this time honored society already promises to be a success. Interesting papers are promised from Cincinnati, Richmond, Wheeling, Chicago, and other cities. The committee are giving the plan adopted last year a thorough trial and so far it works very well.

Any dentist having any thing of interest to show, or to say, are

requested to notify the chairman of the executive committee at once, so that every thing may be put in best shape possible:

More definite announcements can be made next month.

J. R. CALLAHAN,

79 W. 8th Street, Cincinnati.

Chairman Ex. Com.

Obituary—Dr. Bradley.

Died at his home in Dayton, Ohio, November 1st, 1890, of cerebritis, Dr. Calvin Bradley.

He was born in Franklin, O. He went to Dayton in 1842, and began the study of dentistry under the direction of Dr. James Jones, then the leading dentist of that city. He began the practice of dentistry in 1846, having devoted two years of close application in work and study preparatory for the practice of his profession. The progress he made, and the efficiency he attained in his pupilage under so thorough a master, showed itself ever after in his professional career. For forty years he maintained an enviable reputation and position, not only in the profession, but in public estimation as well.

He had many warm friends in the profession; all who knew him admired him. He was not as widely known as his merit would warrant, owing to his retiring manner and disposition. He always avoided notoriety and would not permit himself to be placed in a prominent position. To younger members of the profession he was ever kind and obliging, and his helping hand and ready advice will long be missed, and as long remembered. His special friendships were not very numerous, but when once formed were true and neverfailing. It was the good fortune of the writer to form the acquaintance of Dr. Bradley nearly forty years ago, and in all this time has known him as the true, genial, sincere and warm-hearted friend that showed itself at first acquaintance. Dr. Bradley known, was Dr. Bradley esteemed and loved.

Though he is gone, his life and character stands as an example for all those who remain, as well as for those who shall come after.

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[No. 2.

COMMUNICATIONS.

Artificial Tooth Crowns.

BY J. B. CARMICHAEL, D D S , MILWAUKEE.

Read before the Northern Illinois Dental Society.

From my earliest student days this branch of our profession has engaged my attention, and I believe that the progress made in it has been unequaled in any other department of dentistry. Not more than ten years since dentists, in great numbers, considered the substituting of an artificial crown of very little importance. These same gentlemen have been compelled, "even to the very teeth and forehead of their faults to give in evidence against themselves," and adopt a principle which they ignored, and often denounced, and the demands made upon the profession in this branch of work has brought it up to its present standard of perfection.

The subject of crowning teeth might properly and intelligently be classified and discussed in the following order :

FIRST. Importance of crowning teeth.

SECOND. Variety of teeth which require crowning.

THIRD. The most suitable crown for each case.

FOURTH. The preparation for, and means of attachment.

FIFTH. The patient.

It ought to appear to any ordinary thinking mind that the violation of nature's laws is neither philosophy nor business. "What God hath joined together let no man put asunder" is an injunction of Scriptures as applicable here as it is in the destinies of mankind in other respects. "Save the pieces" is the slang

cry of many an ordinary individual when a accident occurs, or the wilful destruction of any thing appears imminent. Then why should the forceps or the pincers be muscularly applied to tear out the foundations of one of the greatest provisions of nature because hereditary disease, or injudicious living has produced the logical sequence; the destruction of vital functions. The pain consequent is only the cry of nature for a remedy, and a demand for immediate repair and preservation.

Crowning teeth is not a new discovery, for in the earliest days of dentistry and surgery ivory crowns were pegged on to the natural stump and made to do excellent service, and how the profession ever drifted into the practice of pulling out sound roots by the wholesale, and substituting teeth built upon a plate for purposes of mastication can only be partially explained. The tender gums, whose duty it is to moisten and nourish the original teeth, are burdened with a heavy rubber or metal attachment to which are fitted artificial molars, and made to suffer all the torture consequent on the pressure from mastication, besides the sensation created by decayed matter continually getting under the plates and keeping the mouth in a constant state of dirt and irritation, repulsive alike to the owner, and those with whom he is associated. Then the ghastly appearance of the person when those clumsy appurtenances are removed is enough, in the language of Othello, to "Frighten the isle from its propriety," repel all approaches of tenderness, and extinguish every impulse of love.

The plate experiment has been tested to its utmost bounds, and we are forced to acknowledge our mistake by the every day presence of men and women who pour out to us their tales of woe at having lost their teeth, which the skilled dentist of to-day would have repaired; yea, restored in all their beauty, stability, and usefulness. It looks to me to be a much easier matter, and certainly more feasible and acceptable to the patient, that the mouth containing good, solid roots of teeth should have such roots prepared, and a set of suitable crowns built upon them in the most substantial and modern manner, than that they should be torn out and clumsy plates substituted. You have in those

roots the foundation provided by nature for that purpose, and if the work is properly executed it will stand as a house that's built upon a rock. There are many advantages to be derived from this branch of dentistry. The fullness of the jaw will remain; if these roots remain they serve as guide posts, as foundations to build upon, and enable the dentist to replace the decayed and broken down teeth by a set of crowns in shape, size, symmetry, and contour like those preceding them, presenting all the stability and beauty of appearance of the natural product tending to the peace, health, and comfort of the patient, and the pleasure and satisfaction of the operator.

Having expressed ourselves on the necessity of crowning teeth, and the superiority of such over the discarded and abominable plate, we shall now endeavor to present to you, in brief, our opinion as to the various kinds of teeth that should be crowned, which is our

SECOND PROPOSITION. On this subject a great variety of work appears requiring all the judgment and acute perception which natural ability and experience brings.

Should we not be thoroughly converted to the idea of crowning all injured teeth, then we should be able to accurately determine what teeth to crown, and what teeth to fill. As with the plate, the use of which has been carried to such an extreme as to make it an abuse; so, I say, with regard to building down, or building up teeth, as you please to call it. The mania for filling all teeth indiscriminately has passed into history to a great extent never, I hope, to be revived. The thought of rival dentists and ambitious novices malleting for days and weeks, perhaps, just to see how much adhesive gold could be pounded into a cavity, so as to make a walking advertisement of the patient seems equally as reprehensible as the extremes gone to in the case of the discarded plate. I have sat for four hours at a time under the operation, my powers of endurance being taxed to the utmost for the purpose of having one tooth filled, which it would have been much easier to crown, less tedious, less painful, and more durable. Therefore, my own experience both as dentist and patient, forces me to discountenance the tedious and torturing

process of making these large and complicated fillings, especially in front teeth, where appearance is of the utmost importance. The remaining frail portion of badly decayed teeth, especially where the nerve has been destroyed, is not sufficient to sustain an operation of this kind, and make it of lasting utility. The amount of malleting required will often prove injurious to nervous persons, a result which could be avoided by cutting off the diseased portion, and fitting a crown in its place. In cases, however, where the nerve is alive, the teeth extremely soft and sensitive, and where it is not prudent to cut away and crown on account of the living nerve, I would make a partial crown, as follows: Swedge a piece of pure gold to the shape of the decayed portion, and covering the inside cusp. It is then placed upon the tooth and finished flush with the edges of the cavity; an impression taken in wax, getting the accurate acclusion and articulation in conformity with the natural teeth, and the destroyed portion restored. Our next and

THIRD PROPOSITION, is to discover, if possible, the most suitable crown to be used. It is not the purpose of this paper to enter into a lengthy description of the methods of making and substituting artificial crowns, nor of recommending any one crown manufactured. The details can best be understood by clinical demonstration. It is necessary, however, to make some suggestions and explanations. The crowns which come ready for use have their merits and demerits, but can not by any possibility be made to answer the purpose in the endless variety of shapes of teeth, and phases of decomposition of roots; so it remains with the dentist to reconstruct them, or to manufacture his own crowns, as getting that which will suit his purpose from the manufactured crowns is merely an accident. We will dispose then, of the manufactured crown by relegating the whole line of them to that bourne "from whence no traveler returns," as impracticable for general use, insubstantial, and no remedy for persistent decay, but merely an easy means of covering up the incompetency of the dentist. While I do not approve of any excessive use of gold in general operations, especially where prominently apparent, yet I would recommend that all posterior teeth which

are used for mastication, should be fitted with a gold crown on account of its strength and durability, admitting as it does of the proper acclusion, or articulation.

Some ten years ago I introduced a crown die, the first in use as far as I know, by the aid of which perfectly shaped gold teeth can be formed either from a solid nugget, or from plate gold, thus simplifying the manufacture of crowns and bringing it within the experience and practice of every dentist. The porcelain crown, or the porcelain-faced crown, with a gold attachment covering the entire end, or exposed portion of the root, is the best crown with or without the gold band, accomplishing the most desired results on all anterior teeth. My conclusion then, is that the gold crown is the most preferable for all teeth where stability and strength are demanded because it can be struck up or moulded into any shape to suit the dentist's desire, or the requirements of any tooth. Should a whole gold tooth be required it can be moulded by means of the cuttle fish bone, a means suggested by necessity and applied by me ten years ago in dentistry. But in every case where appearance is a desideratum the porcelain-faced crown should be used as more in harmony with natural appearances in all anterior teeth, and extended also to all back teeth which are visible, or partially so. Our

FOURTH POINT was preparations for, and means of attachment. It is not necessary to say much on the preparation of roots; every dentist understanding it; except to suggest that we bear in mind that the more of the root you can leave above the gum margin, the easier will be your operation. You will also be careful to have the roots dressed so evenly that the gold band will fit it as closely as can be done, leaving no aperture where matter can lodge. Again; we must be careful to leave a proper space between the teeth so that the gold bands on two similar teeth, in close proximity, will not crowd each other or crowd the gum thus producing irritation and pain. The gold band used as a means of attachment is very generally accepted as the best. In using a gold band then, I should prefer thin, soft gold about 23 carats fine and 33 Stubb's gauge in thickness, being much more easily burnished to the irregularities of the

root, and causing little or no irritation to the gums. In dressing the root for the crown make a free and liberal separation between the roots, avoiding any possibility of crowding the gums from between the teeth. Do not force the band unnecessarily, or press it to a depth beyond the gum margin as no strength to the crown is gained thereby, and it only produces inflammation and sloughing of the gums, and pain to the patient. Some five or six years ago I was called upon to substitute crowns upon the six anterior superior teeth for a highly nervous and sensitive lady patient who would not submit to the operation of filling a single tooth.

After cutting off the natural decayed crown I set about the task of substituting a good and permanent crown without submitting my patient to the operation of banding the root, and taking a new departure I succeeded in making a crown which has proved to be, in my experience, a decided success, avoiding giving pain to my patient, and being perfect in appearance. The attachment to this crown is made by inserting a double tube pivot in the root, a golden collar about the palatine portion, and a pure gold plate burnished over the end of the root, then an impression taken. I then proceed in the usual manner to adjust the porcelain teeth.

This crown differs from the Richmond in two important points, viz.: It has a second pivot larger than the first and encircling it, and instead of a band I extended the gold basis back so as to form a collar grasping the anterior portion of the natural root and making an immovable foundation on which to solder and solidify the superstructure of a porcelain face and a solid gold back, completing a tooth where all the metals are visible and the natural appearance is preserved. Our

FIFTH PROPOSITION: The patient shall not occupy our time except for a few remarks and then we shall close this paper. Your patient places implicit confidence in your ability and knowledge of your art and gives you to understand that money consideration shall not stand in the way of a perfect piece of workmanship. He or she will also be reasonable enough to know that there is in dentistry, as in medicine and surgery, a limit to

all human means and appliances. The prominent desire being to have the teeth put in the best possible condition and to insure to them those pleasures which can only be derived from a perfect condition of those important organs which pertain to the necessities of human existence. The dentist, on his part, must exercise great patience and constant consideration for the feelings of his patient, and cultivate harmony by gentlemanly and kindly demeanor, thus bringing about mutual reciprocal sympathy, facilitating the production of a nice and lasting piece of mechanical work which shall prove to be to him a lasting evidence of his skill in a noble profession and a source of gratification and delight to the individual who selected him for the duty.

I now say "Good-by" for the present, trusting that my remarks may tend to draw out the thoughts of others, and to advance and elevate one of the grandest professions of modern civilization for the alleviation of human suffering, and the repairment and maintenance of the chief machinery of human life.

Five Cases of Removal of the Jaw for Tumor.

BY WILLIAM D. HAMILTON, M.D., OF COLUMBUS, OHIO.

Read in the section of Dental and Oral Surgery at the forty-first annual meeting of the American Medical Association at Nashville, Tenn., May, 1890.

The cases that form the subject of this paper have come under the observation of the writer in his service at the Mount Carmel Hospital within the past three years. Three had to do with the superior, and the remaining two with the inferior maxilla. There were four females and one male. The youngest patient was twelve, the eldest fifty-five years of age.

In conversation with the eminent surgeon, Mr. Thornley Stoker, of Dublin, last summer, it was learned that one of his patients for whom he had recently extirpated the upper jaw for sarcomatous disease, was a woman eighty years old. A still more interesting fact was elicited: that she was discharged from the hospital cured in a fortnight.

Cases of epithelioma beginning in the soft parts will not be herein considered. In this department of oral surgery we are confronted with certain facts at the outset: 1. Difficulty in maintaining anæsthesia. 2. The impracticability of observing with nicety antiseptic details. 3. The tendency to hemorrhage and shock.

It is to be hoped that rectal anæsthesia will some day be reduced to a practical method, so that an irritating fluid like ether may be prevented from entering the bowel in the liquid state, where it excites such great disturbance, or even perhaps a fatal bloody diarrhœa.

The renewal of the anæsthetic on account of the returning consciousness of a patient upon whom such an operation is being performed is a most embarrassing and pathetic necessity. It frequently means the occurrence of vomiting and the loss of invaluable time. The resort to a preliminary tracheotomy, while possessing certain advantages as a mode of administration, is by no means free from danger to the lungs and air passages which it is intended to protect, while its performance must add materially to the shock.

Unfortunately the mouth is frequently found to be in an unwholesome condition. The irregularities of the growth, which may prevent separation and closure of the jaws, the occasional existence of a foul ulcer that has been teased and irritated by opposing teeth, the numerous hiding places for septic matter in such a cavity—all these considerations make it a trap for filth, and enhance the difficulty of preventing suppuration. It is all the more incumbent upon the surgeon, however, to aim at thorough cleanliness. There should be liberal irrigations with a harmless antiseptic lotion like boracic acid in an aqueous solution, and in this way all removable matter disposed of in the five days prior to the operation.

The strict observance of extrinsic antiseptic details is as clearly imperative in this as in other surgical procedures.

As a preliminary step, with a view to preventing hemorrhage in removing some of these growths, the common or external carotid artery has been tied. While benefit may sometimes be

derived from it, preparatory delagation was not seriously contemplated in any of the cases enumerated. In dealing with the facial artery and vein, the knife was carried quickly down to the bone dividing them clean at one stroke. Their prompt seizure with hæmostatic forceps prevents the loss of much blood, and simplifies the operation. Digital pressure by an assistant is available during their isolation.

With reference to shock it may be said that time is a most important element. In order to minimize the duration of the ordeal, scrupulous care should be taken to have a simple reliable armamentarium at hand consisting of strong instruments in perfect condition. For completing the division of bone a pair of powerful straight pliers, with short jaws and long handles, giving great leverage is invaluable.

For ligating vessels properly prepared silk is preferable. A precaution that should never be neglected is to transfix the tongue with a coarse silk thread; the ends being tied together should be held by an assistant. It is perhaps needless to observe that anæsthesia should be *very profound* before beginning.

Again, it is a rule applying to all such undertakings to postpone entering the cavity of the mouth as long as it is consistent with method. Therefore the bone should be freed as extensively as may be before the mucous membrane is divided. In this way blood can often be kept outside of the throat until the operation is wellnigh completed.

CASE 1.—Adeno-Sarcoma of Lower Jaw. Removal of left Half of Bone. Recovery.

Miss N. M., sent by Dr. A. M. Dent, of Coshocton, Ohio, was 27 years old when first seen by the writer. In July, 1884, she ran against the edge of a door in the dark and the left side of the face was struck. Some swelling followed which never receded. From the time of the injury until September, 1888, when she was admitted to the hospital, her face grew larger. The disease first appeared in front of the left masseter muscle and the contiguous portion of bone gradually became implicated. She stated that it had grown more rapidly since October, 1887, than during the preceding two years. A slight

oral hemorrhage took place then, and pain had annoyed her most of the time since. The latter was attributable to the continual bruising of the tumor by the upper teeth. A surgeon having been consulted some months previously, had incised and scraped the prominent outer surface of the jaw, and with negative results. The month preceding the second operation had been of rapid progress of the growth. Painful sores existed where the upper teeth impinged upon it. The left side of the face had a rounded appearance, the cheek being prominently bulged outward. The mouth was encroached upon both posteriorly and toward the median line, so that it could only be opened for distance of seven-eighths of an inch. The ramus was extensively involved.

Operation September 30, 1888, Dr. F. W. Blake, and Dr. A. N. Dennison assisted. The usual incision was made and extended in the line of the old cicatrix. A clear exposure of the bone thus being secured, the dissection was completed with guarded scissors, care being taken to cut *on* the tumor throughout. While detaching it from the cheek, several sub-cepts of which it was partially composed, discharged their contents into the wound, the fluid being of a yellow, viscid character. The subsequent steps of the operation, including the disarticulation and the median section with the saw, were readily accomplished. Hemorrhage was tolerably free, but easily controlled. Interrupted silk sutures were used in uniting the mucous lining of the cheek, and continuous gut for the outside. A rubber drain was inserted at the most dependent point and allowed to remain for several days. Shock was well marked, but yielded promptly to proper measures. Some suppuration of the wound with febrile movement ensued, and retarded her recovery. She was discharged four weeks later.

Microscopical examination showed it to be an adeno-sarcoma that had probably developed centrally, expanding the plates of the bone, parts of the growth having undergone cystic degeneration.

CASE 2.—Osteo-Sarcoma of Right Upper Jaw. Excision. Recovery.

P. C., æt. 16, from Johnstown, Licking Co., Ohio, was sent by Dr. C. R. Lockwood, of that place. He had always enjoyed good health. In the early part of 1884 the right side of his face was seen to be getting larger, especially in the neighborhood of a defective upper molar tooth, from which the disease seemed to emanate. The growth was gradual until early in December, 1888. He entered the hospital February 8, 1889, at which time the right cheek was the seat of a prominence extending laterally from the molar bone to the side of the nose, and vertically from the angle of the mouth to the floor of the orbit. The latter was lifted up and the right eye slightly elevated. The hard palate was moderately depressed. There was no sign of fluctuation at any point.

Diagnosis.—A tumor of the upper jaw which had of late taken on such rapid growth that removal was deemed advisable.

Operation.—February 11, 1888. The entire right upper jaw was excised by the external flap method. An incision began opposite the inner angle of the eye, going vertically downward, encircling the wing of the nose and through the lip in the median line. Following again the natural fold between the cheek and the lower lid, it proceeded along the rim of the orbital floor as far as the molar bone. The flap could then be easily raised and the cheek was reflected from within outwards, thus securing a good exposure of the tumor. An incisor tooth was then extracted, and the saw was carried through the hard palate and the alveolus of the missing tooth, the nose being pushed out of the way. A section of the nasal process of the upper jaw and molar bone followed, the latter line of division being continuous with the spheno-maxillary fissure. The bones were of ivory-like hardness, so that their division was very tedious and difficult. Large pliers were forced into the notches made by the saw, thus loosening the growth, so that the pterygoid process could be broken and the soft palate cut away. The patient behaved badly under ether, a large quantity of which was required. The extreme hardness of the bones and the time consumed in dealing with them added to the delay. The wound was dusted with iodoform and stitched with gut inside and out, and no drain was used.

The shock was very profound. Evidently considerable concealed hemorrhage had occurred, for the patient vomited a large amount of clots and bloody fluid. The lower extremities were elevated, and injections of warm water and brandy were frequently given. Hypodermics of morphia and brandy were resorted to, dry heat was liberally applied, and after two hours of persistent effort vomiting ushered in reaction. Union was tolerable firm in 30 hours, and his convalescence was uneventful.

CASE 3.—Large Round-Celled Sarcoma of Right Upper Jaw. Excision. Recovery.

Mrs. M. A. T., æt. 55. Residence, Napoleon, Henry County, Ohio. In July, 1888, a swelling was first observed over the right molar bone which continued to grow until February 27, 1889, the date of her admission. Had had nose-bleed once a month before. Her health had always been good, and the growth was only slightly painful. The physical alterations, and the change in facial expression were about such as were seen in Case 2.

In view of the rapid development of the tumor excision was advised, and was done March 2, 1889. Aside from the fact that the incision was longer, the plan adopted was the same as that in Case 2. Much less difficulty was experienced in making the sections than in the former case, the bones being much softer. The wound having been carefully sutured, neat apposition was secured. External hemorrhage was very slight. One-third of a pint of clotted blood was vomited after the completion of the operation. Shock was hardly appreciable, and the pulse, although somewhat weak, was slow and regular. She passed a good night, and after the first week had no febrile disturbance. She was discharged March 24, three weeks after the operation.

CASE 4.—Sarcoma of Left Upper Jaw. Excision. Recovery.

Gertrude W., æt. 12; brought by Dr. Chambers, dentist, from Newark, Ohio. Eighteen months before, when cutting a molar tooth, she had observed that her left cheek was prominent. Two months before entering she had had a single nose-bleed. She was in good general health. The floor of the orbit was elevated by the growth, and the left side of the nose somewhat

smaller and crowded forward. The roof of the mouth was depressed on the side involved. On November 6, 1889, the external flap operation was done in the usual manner. She had no unpleasant symptoms, and was discharged well in a fortnight.

CASE 5.—Recurrent (Myrtoid or Giant Cell) Sarcoma of Lower Jaw. Excision of Right Half. Recovery.

Mrs. A. W., æt. 36. Residence, Corning, Perry Co., Ohio. In 1875 she had undergone an operation for epulis of the lower jaw, in which several teeth with their alveoli were removed. Suspicions of recurrence were aroused early in November, 1889, and she entered the hospital three weeks later. A growth, central to the right maxilla had evidently started at, or near the angle, causing the bony plates to spread. It was growing forward on the body, and upward on the ramus. It had, of late, become painful, and excision was advised and done on November 30, in the usual manner. The anterior section was easily accomplished, as only the rim had been left when the epulis had been ablated. Care was observed in securing the vessels, but notwithstanding this fact, persistent and rather free secondary hemorrhage occurred during the night following the operation, which necessitated the removal of a few stitches, and reopening the wound. No vessels of appreciable size could be found, however, and Monsell's solution was applied. An opening was left for drainage and for the escape of sloughing particles. The bleeding never recurred, and the wound healed nicely by granulation. She was discharged in three weeks.

The original disease was epulis of a malignant type. The propriety of removal in cases of epulis is forcibly impressed upon us, and this had been thoroughly done by Dr. McGraw, of Detroit.

These cases, and one already reported in the *New York Medical Journal* of May 10, 1887, in which a large tumor and half of the lower jaw were excised, make six in all; three of the superior, and three of the inferior maxilla. If an apology be wanted for their presentation on this occasion, reference might be made to the fact that Dr. Deadrick, of Tennessee, in 1810, was the first to remove a portion of the lower jaw for tumor.

Reports of operations of the kind enumerated do not seem to

be common nowadays. Whether it be on account of their infrequency, or because they are deemed unimportant, I can not say.

While an experience such as that indicated is not sufficiently broad to justify one in dogmatizing, I suspect that the larger proportion of these cases can be successfully handled without the preliminary delegation or tracheotomy; that the best way to *do* them is to get *through* with them as quickly as is compatible with thoroughness.

All the patients are free from recurrence to-day.

General Manner of Conducting Dental Societies.

DR. J. W. LYDER, AKRON, O.

Read before the Akron Dental Society.

The benefits that result from association, as great as they are in commerce, politics, agricultural interests, are still greater to us as professional men. So necessary are associations to the advancement of science that the latter has rarely flourished without the aid of the former. In entering into an association new resolutions should be made, and special pledges offered to apply to each individual member. Their nature should be such as participating in all discussions, accepting any share of duty assigned us, wherein science and art are the crowning achievements in our profession.

The field which is opened up in dental association for gaining practical knowledge pertaining to our profession is unequalled in extent by any other. Our Maker has not yet created the man endowed with sufficient skill, ingenuity, and brain to encompass all that is required to make a competent dentist in a short space of time. It is, therefore, of greater importance that each one avail himself of the benefits of associated labor and knowledge. The practical workings of any association should be participated in by every member. As a dormant or lifeless seed does not bring forth fruit, neither will the member who fails to engage in

the discussions, or participate in the work, become a good thinker or worker. Dental associations should be so constituted as not only to educate its members, but to produce harmony and a brotherly feeling among them.

The matter of forming a schedule of prices is not a matter to be incorporated in the rules of an association. An understanding of a minimum price will be adhered to by honorable practitioners, and a good operation is worth its price, while a poor one is only worth what is charged for it, and no honorable dentist will reduce his price so as to deprive him of the best material for his operations. He should never undercharge a professional brother for the sake of drawing away his patients. This is an actual meanness which even the want of bread would not justify. It is suicidal for a man to perform cheap operations, for by the common sense of mankind he is held in cheap repute and always rated at his own price, and his public career is a short one.

The active workings of a society should be that all subjects should be assigned in advance, allowing ample time for study previous to the regular meeting. It should be a duty as well as pleasure for every member to present some new appliance or new thought at its meetings.

The adoption of a question-box has proved of great interest. The use of a blackboard is almost indispensable, and should be freely used in illustrations. The executive is the motive power, and on it depends success of development. If the above named thoughts and duties are participated in by the members of this society with zeal, we shall be better dentists, and more honorable to our profession at the close of the current year.

FOR THE HAIR :

R. Quiniæ sulphatis.....	x grains.
Spt. myrciæ.....	jii ounces.
Glycerinæ.....	j ounce.
Sodii chlori.....	ji drachms.
Aquæ, q. s. ad.....	jiiiv ounces.

M. S. Local use. There are hundreds of so-called hair tonics containing more or less of these ingredients, but the one here given is the most satisfactory of its kind.—*Cour. of Med.*

Diseases of the Teeth and Their Relation to the General Health.

BY W. M. WILLIAMS, M.D., CINCINNATI.

A paper read before the Cincinnati Medical Society, November 11, 1890.

Diseases of the teeth have become so common that it is a subject of paramount importance—a subject of importance to the physician, as well as to the dental specialist, and I shall endeavor in this paper to bring to your attention what on the subject should be of special interest to the general practitioner.

Caries of the teeth, which is the most common affection, is largely a disease of childhood. The teeth erupt in an imperfect state of development as to structure. The ossification is incomplete; the center of the tooth is largely pulp, which each year becomes smaller, until in old age the pulp is almost obliterated. The dentine, under favorable circumstances, becomes harder with age. Hence, we see that in childhood the teeth are less able to resist destructive agents, and decay does not have to penetrate far to reach the pulp.

Other causes than age predispose the teeth to decay. Sex is to be considered. Women do not have as good teeth as men for the reason that their health is less rugged. Any wasting disease, such as fevers or consumption, has its effect on the teeth, particularly in a person of thirty or thirty-five years.

Pregnancy has a most marked effect. Women whose teeth have always been good, often experience much trouble from caries after having had children. Indeed, this is quite the rule. Heredity is always a constant factor.

Caries of the teeth having once begun rarely ceases to be progressive, and unless checked by treatment will go on to the destruction of the tooth, and it is most likely to involve adjacent teeth. After the caries has penetrated to the pulp a more serious condition exists. Especially is this so in children, and it is apt to involve the loss of the tooth. On the exposure of the pulp much pain ensues, which continues usually until the pulp dies,

after which the tooth may remain quiet for a time, until the pulp undergoes decomposition, and the products of the decomposition escaping through the foramen at the apex of the root into the tissues beyond, set up an acute inflammation which usually runs a definite course, and after much suffering, and often great swelling of the face, terminates in an alveolar abscess at a point near the apex of the root of the tooth involved, and if the tooth be not removed or thoroughly treated this abscess will remain open and become chronic.

This condition may terminate in other ways. If the diseased tooth be a superior first molar the abscess may break into the antrum of Highmore, and cause an abscess of that cavity. Fortunately this is not a very common complication, but I have seen a number of cases of it. These abscesses occasionally cause necrosis of the jaw bone, and another serious result which frequently occurs is where one of the inferior first permanent molars of a child from eight to fifteen years old becomes abscessed. The tissues being soft and yielding, the pus burrows and gravitates and forms an external opening, usually under the jaw. Sometimes there are several of these openings, forming unsightly scars. The salivary and lymphatic glands in the neighborhood generally become infiltrated. Such results are likely to happen in any case, but the sure preventive is the extraction of the tooth.

There are cases reported where a general blood poisoning has resulted from abscessed teeth.

Neuralgia is commonly associated with diseases of the teeth. In people of the neuralgic tendency one of the branches of the fifth pair of nerves may be the seat of the most severe pain having its origin in dental lesions, and causes of the most cruel and persistent facial neuralgia are often entirely cured by the removal or treatment of diseased teeth.

While these are the most serious troubles that result from dental lesions, there are other consequences that invariably attend them, dependent on the extent of the caries, or number of teeth involved or already lost. Mastication can not be perfectly performed owing to loss of teeth, or pain in the diseased ones, and

thereby food is taken into the stomach but imperfectly prepared for it, and as a consequence there are alimentary disturbances and mal-nutrition. I have known people to increase rapidly in weight after having had their teeth restored to a healthy condition or artificial ones inserted. Great as the effect of diseased teeth is, in an ordinarily healthy person, much more would a person who is sick from other causes suffer therefrom, and convalescence may be greatly retarded.

A very offensive breath is caused by unhealthy conditions of the oral cavity, not alone always due to carious teeth, but to inflammation of the gums; also caused by salivary calculi or tartar.

It is common in people who have neglected their teeth to find nearly half of the thirty-two teeth largely broken down, and the gums tumefied from diseased roots. Nor is this condition found only in the ignorant and poorer classes. People who have intelligence and means neglect themselves through want of thought or information on the subject, only to regret it bitterly when too late. It is the duty of a physician, who is the custodian of the health of his patients, to advise them on this subject, and to see that their health and comfort does not suffer by this neglect.

DISCUSSION.

Dr. C. R. Holmes: A prominent young lady of the city came to me, a short time ago, on account of intense pain in the left ear, and radiating down the neck. She attributed it to a nasal catarrh which she had. Treatment availed nothing. I sent her away for a change of climate. She returned home with the same old story of pain in the ear. I examined the Eustachian tube, but could find nothing. Finally one day I noticed that the gum was swollen just where the wisdom tooth was coming through. I introduced a probe and got pus. I then sent her to a dentist and the tooth was extracted. Shortly afterwards she came to my office again. She had swelling along the back of the neck extending down to the scapula. I gave her a placebo and all the symptoms disappeared the next day.

Dr. C. E. Caldwell: Reflex neuralgia due to the teeth is common. I have had a number of such cases. Whenever a

case of severe ear-ache comes to my office I always first inspect the teeth, and often find here the cause of the neuralgia. One case of severe facial neuralgia I sent to a dentist. He sent her back with the statement that the teeth were all good, and that the neuralgia was due to malaria. I afterwards found a small abscess at the root of one of the teeth, which I opened, and the neuralgia then disappeared.

Dr. Fitzpatrick: I would like to ask the essayist how he would differentiate between neuralgia due to the teeth and neuralgia due to the presence of intra-nasal hypertrophies.

Dr. Williams: The way to differentiate would be to examine the teeth, and if they are all sound look elsewhere.

Dr. Thompson: A probable answer to Dr. Fitzpatrick's question could be made by the application of a solution of cocaine to the nose. The same is also true of the teeth. By the application of cocaine here you can often allay the neuralgia.

Dr. Thorner: Does not facial neuralgia sometimes result from the teeth even when there is no caries.

Dr. Williams: A tooth that has a live pulp can not have an abscess. By sounding the tooth, or drilling into it, you can ascertain whether the pulp is dead or alive.

DEDUCTIONS FROM EXPERIMENTS WITH DRUGS.—The *Progres Medical* states that Dr. Huchard recently read a paper on "The Physiological and Therapeutical Action of Drugs" before the *Societe de Therapeutique*, calling attention anew to significant differences in the action of certain drugs in the well and in the sick, and in various forms of disease. For example, it was stated that quinine lowered the temperature in typhoid fever, but had no such effect in erysipelas. The lesson to be drawn from such facts is that it is not safe to make sweeping therapeutic deductions from observations of the physiological action of drugs. To use the author's words, "Physiology should not enslave medicine."—*N. Y. Med. Journal*.

As a local anæsthetic Dr. J. B. Mattison recommends a spray of the following compound, viz.: Menthol one drachm, chloroform ten drachms, ether fifteen drachms.

SELECTIONS.

Peroxide of Hydrogen and Ozone. There Antiseptic Properties.

Read before the International Medical Congress, held at Berlin, Germany, on the 7th of August, 1890.

By Dr. Paul Gibier, Director of the Pastuer Institute of New York.

GENTLEMEN :—

Since the discovery of Peroxide of Hydrogen by Thenard, in 1818, the therapeutical applications of this oxygenated compound seemed to have been neglected both by the medical and surgical professions; and it is only in the last twenty years that a few bacteriologists have demonstrated the germicidal potency of this chemical.

Among the most elaborate reports on the use of this compound may be mentioned those of Paul Bert and Regnard, Baldy, Pean and Larrive.

Dr. Miguel places Peroxide of Hydrogen at the head of a long list of antiseptics, and close to the silver salts.

Dr. Bouchut has demonstrated the antiseptic action of Peroxide of Hydrogen when applied to diphtheritic exudations.

Prof. Nocart, of Alfort, attenuates the virulence of the symptomatic microbe of carbuncle, before he destroys it, by using the same antiseptic.

Dr. E. R. Squibb, ¹of Brooklyn, has also reported the satisfactory results which he obtained with Peroxide of Hydrogen in the treatment of infectious diseases.

Although the above-mentioned scientists have demonstrated by their experiments that Peroxide of Hydrogen is one of the most powerful destroyers of pathogenic microbes, its use in therapeutics has not been as extensive as it deserves to be.

In my opinion the reason for its not being in universal use is the difficulty of procuring it free from hurtful impurities. Another objection is the unstableness of the compound, which gives

¹Gillard's Medical Journal, March 1889.

off nascent oxygen when brought in contact with organic substances.²

Besides the foregoing objections the surgical instruments decompose the peroxide, hence, if an operation is to be performed the surgeon uses some other antiseptic during the procedure, and is apt to continue the application of the same antiseptic in the subsequent dressings.

Nevertheless, the satisfactory results which I have obtained at the Pasteur Institute of New York with Peroxide of Hydrogen, in the treatment of wounds resulting from deep bites, and those which I have observed at the French clinic of New York, in the treatment of phagedenic chancres, varicose ulcers, parasitic diseases of the skin, and also in the treatment of other affections caused by germs, justify me in adding my statement as to the value of the drug.

But, it is not from a clinical standpoint that I now direct attention to the antiseptic value of Peroxide of Hydrogen. What I now wish is to merely give a full report of the experiments which I have made on the effects of Peroxide of Hydrogen upon cultures of the following species of pathogenic microbes : *Bacillus anthracis*, *bacillus pyocyaneus*, the bacilli of typhoid fever, of Asiatic cholera and of yellow fever, *streptococcus pyogenes*, *micro-bacillus prodigiosus*, *bacillus megaterium*, and the *bacillus* of osteomyelitis.

The Peroxide of Hydrogen which I used was a 3.2 per cent. solution, yielding fifteen times its volume of Oxygen; but this strength was reduced to about 1.5 per cent. corresponding to about eight volumes of Oxygen, by adding the fresh culture containing the microbe upon which I was experimenting. I have also experimented upon old cultures loaded with a large number of the spores of the *bacillus anthracis*. In all cases my experiments were made with a few cubic centimetres of culture in sterilized test-tubes, in order to obtain accurate results.

The destructive action of Peroxide of Hydrogen, even diluted in the above proportions, is almost instantaneous. After a contact of a few minutes, I have tried to cultivate the microbes which

²The Peroxide of Hydrogen that I use is manufactured by Mr. Charles Marchand, of New York. This preparation is remarkable for its uniformity in strength, purity and stability.

were submitted to the peroxide, but unsuccessfully, owing to the fact that the germs had been completely destroyed.

My next experiments were made on the hydrophobic virus in the following manner:

I mixed with sterilized water a small quantity of the medulla taken from a rabbit that had died of hydrophobia, and to this mixture added a small quantity of Peroxide of Hydrogen. Abundant effervescence took place, and as soon as it ceased, having previously trephined a rabbit, I injected a large dose of the mixture under the dura matter. Slight effervescence immediately took place and lasted a few moments, but the animal was not more disturbed than when an injection of the ordinary virus is given. This rabbit is still alive, two months after the inoculation.

A second rabbit was inoculated with the same hydrophobic virus which had not been submitted to the action of the peroxide and this animal died at the expiration of the eleventh day with symptoms of hydrophobia.

I am now experimenting in the same manner upon the bacillus tuberculosis, and if I am not deceived in my expectation, I will be able to impart to the profession some interesting results.

It is worthy of notice that water charged, under pressure, with fifteen times its volume of pure oxygen has not the antiseptic properties of Peroxide of Hydrogen. This is due to the fact that when the peroxide is decomposed nascent oxygen separates in that most active and potent of its conditions next to the condition, or allotropic form, known as "Ozone." Therefore it is not illogical to conclude that ozone is the active element of Peroxide of Hydrogen.

Although Peroxide of Hydrogen decomposes rapidly in the presence of organic substances, I have observed that its decomposition is checked to some extent by the addition of a sufficient quantity of Glycerine; such a mixture, however, can not be kept for a long time, owing to the slow but constant formation of secondary products, having irritating properties.

Before concluding I wish to call attention to a new oxygenated compound, or rather ozonized compound, which has been recently discovered and called "Glycozone" by Mr. Marchand.

The Glycozone results from the reaction which takes place when glycerine is exposed to the action of ozone under pressure—one volume of glycerine with fifteen volumes of ozone produces Glycozone.

By submitting the bacillus anthracis, pyocyaneus, prodigiosus and megaterium to the action of glycozone, they were almost immediately destroyed.

I have observed that the action of Glycozone upon the typhoid fever bacillus, and some other germs, is much slower than the influence of Peroxide of Hydrogen.

In the dressing of wounds, ulcers, etc., the antiseptic influence of Glycozone is rather slow if compared with that of Peroxide of Hydrogen, with which it may, however, be mixed at the time of using.

It has been demonstrated in Pasteur's laboratory that glycerin has no appreciable antiseptic influence upon the virus of hydrophobia; therefore, I mixed the virus of hydrophobia with glycerine, and at the expiration of several weeks all the animals which I had inoculated with this mixture died with the symptoms of hydrophobia.

On the contrary, when glycerine has been combined with ozone to form Glycozone, the compound destroys the hydrophobic virus almost instantaneously.

Two months ago, a rabbit was inoculated with the hydrophobic virus, which had been submitted to the action of this new compound and the animal is still alive.

I believe that the practitioner will meet with very satisfactory results with the use of Peroxide of Hydrogen for the following reasons:

1. This chemical seems to have no injurious effect upon animal cells.
2. It has a very energetic destructive action upon vegetable cells—microbes.
3. It has no toxic properties; five cubic centimetres, injected beneath the skin of a guinea-pig do not produce any serious result, and it is also harmless when given by the mouth.

As an immediate conclusion from my experiments, my opinion—

ion is, that Peroxide should be used in the treatment of diseases caused by germs, if the microbial element is directly accessible; and it is particularly useful in the treatment of infectious diseases of the throat and mouth.

The Relation of Diet to Personal Beauty.

BY JOHN V. SHOEMAKER, A M., MD.

Professor of Therapeutics and Materia Medica, Dermatology and Clinical Medicine in the Medico-Chirurgical College of Philadelphia; Author of a Treatise on Skin Diseases; the Oleates in Skin Diseases; Health and Personal Beauty, &c., &c.

Thomas Carlyle, a mighty thinker, but a man of perverse moods and a chronic dyspeptic, wrote admiringly of an ideal "eupeptic" man as one who was brave, dutiful and dominant. From the depths of his unhappy experience, a victim to "the vile hag, Dyspepsia," the rugged Scotchman perceived the immense advantage which (other things being equal) the man of good digestion possesses in the battle of life. Carlyle's hero is emphatically a strong man; but viewing him from another standpoint we may also be permitted to affirm that he is a handsome man. This statement may seem to be made in the spirit of the time-honored adage, "handsome is that handsome does." It admits, however, of a ready explanation. For in what does personal beauty consist? What are its chief elements? We are not able, it may be said, to add to, or take from our stature; we can not alter the contour of head and face, and can not train features to beauty of form. These objections are perfectly valid. At this period of the world's history, after the great fusion of races, or at least, tribes which has taken place in Europe, we can not expect to find the ideal purity of feature which distinguished the nations of classical antiquity, and especially the Greeks. Perfect regularity of features, or facial beauty, from an absolutely artistic point of view, we do not look for, scarcely even desire in men. That which adorns man is the stamp of intellect

and strength set upon his face. Beauty in the male chiefly consists in a well-developed form, and an expressive countenance. Functionally active facial muscles perpetually responding to the impulses of an active mind give interest, variety, and in a sense, beauty, to features otherwise of an ordinary type. That intellectual pursuits bestow dignity and distinction upon the human countenance is a fact noticed in an Egyptian poem of the XIIth Dynasty, written perhaps 2,000 years B. C.

But when we speak of personal beauty it is especially of woman that we think. In woman a rounded outline, grace of movement, delicacy and regularity of features, fairness of skin, gloss and luxuriance of hair, carry beauty to perfection. Yet, even in the "fair sex" *par excellence*, the charmed beholder seldom pauses, or cares to pause, to criticise the form of features animated with ever-varying expression. Our highest admiration is not given to the

* * * * "cold and clear-cut face, as I found when her carriage past,

Perfectly beautiful: let it be granted her: where is the fault?

All that I saw (for her eyes were downcast, not to be seen)

Faultily faultless, icily regular, splendidly null,

Dead perfection, no more;"

but to the face instinct with love, mirth, and vivacity. Beauty resides in the pure skin, sparkling eye, healthy bloom, pearly teeth, ripe and smiling lips, a refined, mobile, and intellectual expression. And these are not fortuitous possessions. Disregarding, for the present, the influence of heredity we may confidently assert that the essential attributes of beauty depend, to a great extent, upon proper food, or more strictly, upon proper digestion. For, as I have elsewhere pointed out,* food, though abundant and nutritious, may be so poorly prepared that the appetite is not excited, the palate pleased, or digestion thoroughly performed.

Perfect development depends upon perfect nutrition. It is certain that nutrition can not be perfect unless the digestive apparatus properly performs its functions. If the normal pro-

* Heredity, Health and Personal Beauty, by John V. Shoemaker, A.M., M.D., Philadelphia and London; F. A. Davis, 1890.

portion of acid and ferment be disturbed in the gastric juice, or if the liver, pancreas, or intestinal glands are deranged, if inactive kidneys and constipated bowels check the elimination of deleterious bye-products, the skin loses its softness and the complexion becomes dull. The beautiful violet tinge of the sclerotic gives place to a muddy hue, the flashing eye grows dull and heavy. The cellulo-fatty tissue of the face wastes, the features grow thin, and wrinkles appear. Acne, seborrhœa, eczema, urticaria, erythema, or furuncles may develop upon the face, the hair is liable to become dull and thin, and the teeth to decay. The angles of the mouth droop, and a haggard, anxious glance replaces the frank aspect of health. Irregularity of features which was scarcely noticed when the eye was bright and sparkling, the skin pure, and the complexion brilliant, now becomes painfully apparent.

It is doubtless true that woman is not to be prized solely for her beauty. Nevertheless, her beauty must always be a magnetic charm and is justly regarded by herself as a valued possession. Our American women are apt to fade easily because they neglect the laws of health. Women as well as men participate in, and are injured by the keen competition and ambitious struggles of our social and commercial life. Among the wealthy the whirl of society, late hours, rich food, and neglect of physical exercise, breed indigestion and its attendant ills, and art is called upon in vain to repair or cancel ravages due to defiance of natural laws. In the poor or the middle classes coarse, insufficient, or badly cooked food, eaten hastily, without appetite and with an anxious, pre-occupied mind, transform the pretty bride, all too soon, into the thin, plain, jaded mother and household drudge. Good food, well-prepared, eaten leisurely and properly digested, preserves cheerfulness, a pleasant interest in affairs of life, health, and what is by no means least deserving of our consideration, personal beauty.—*Dietetic Gazette.*

Ambidexterity.

There are perhaps few accomplishments so useful to a dentist as the power of employing at will the left as well as the right

hand. And yet comparatively few persons acquire the facility of using the hands inter-changeably. It is a very curious circumstance that the neglected use of the left member seems to be the result of a widespread aversion to the practice of replacing it for its neighbor. We go a long way back in history when we attempt to discover a period when the hands were regarded as of equal value. The very words *right* and *left*, and their analogues in the dead and continental languages, imply something under-handed in connection with those who work with the left, but uprightness, probity, and straightforwardness when the right hand is employed. Dexterity suggests aptitude and skilled performance of some delicate manipulation, whilst the sinister action connotes it may be skill, but brought to bear in a way that is not for the benefit of the persons concerned. A left-handed blow is a blow in the dark, and many are the curious charms, invocations to evil spirits, which constitute a large portion of folklore in the less civilized villages in the United Kingdoms containing directions where the word "left" appears figuring in a truly sinister way. However, it would seem that prejudice enters in no small measure into the causation of the disrepute into which the left hand has fallen. The majority of individuals are content to employ half their faculties and half their manual possibilities. Custom, it would appear, has induced mankind to favor the "right" and neglect the "left," a neglect which has resulted in a less skill and adroitness in that hand: hence has arisen clumsiness, inaptitude, or even manipulative failure, and from these, of course, obloquy. How far nature has given us a bias towards adroitness, that is right-handed action, is a moot point, for children as a rule employ one or the other hand apparently as the fancy dictates, until taught by the minatory slap from the guardians of their tender years. Indeed, the frequency with which children evince ambidexterity encourages the belief that this faculty is almost inherent in the average individual. Many of our readers may remember how strongly the late Charles Reade, the novelist, insisted upon this. Even if the natural state of affairs is that the majority of mankind are born, grow up, and die right-handed, there can be very little

doubt that careful training, more especially during youth, can accomplish almost perfect ambidexterity. The degree of success in any given case will, of course, depend upon the general handiness of the individual. The average man bungles at threading a needle, a feat which is accomplished without apparent effort by the most unneathanded of Phyllises. Here education and use come in, and it is the object of the present article to insist upon the value to dentists of educating the left hand to do what the right hand is capable of doing. The enormous power of substitution in nature can not but prove to us that we are dependent upon one set of members only so far as we neglect making use of auxiliaries. Handless monsters acquire a nicety of touch and facility of use with the toes, which carries them to the fore front of skilled workers with paint brush, pencil, etc. Persons afflicted with writers' cramp, and those who have, through accident, lost the use of their right hand, soon acquire the art of writing and drawing, and general manipulation with their left. The spur which necessity brings to bear in these cases would not be needed were a commonsense view of the matter taken by mankind at large, and the young of either sex duly instructed in the use of both hands. We do not for the moment wish to imply that ambidexterity may not be acquired in later life, and would urge our readers, as far as possible, to cultivate the left hand, unless they should be what is called "left handed," for then the right hand should receive its share of the useful, if irksome training. None but those who have tried it will be able to appreciate the usefulness of ambidexterity in dentistry. It enables difficult manipulations to be performed with increased facility, and forms the means of lessening the labors, and relieving the monotony of prolonged operations.—*Dental Record*.

Diet in Diphtheria with Special Consideration of the Proper Food for Children.

The condition of the alimentary canal of the child from birth should receive the most thoughtful attention of the mother. That which goes into it should be most carefully selected and prepared, and that which goes from it should be closely observed

from time to time. At frequent intervals the child should be weighed in a balance, and if found wanting more scrupulous care should be given to the diet than before with the view of making up the deficiency. The mother should know that in the case of the child it not only eats to live, but should also eat to grow. The best and most nutritious food should be selected, it should be given at regular and proper intervals, and the child should be taught to eat carefully and slowly. From the beginning of the teething process the family dentist should be visited at regular intervals with a view to caring for the teeth, which are of greater importance to the well-being of the child than is usually appreciated by the laity. The child should be taught how to masticate, for thorough mastication needs to be taught. We help them in learning to walk, we aid them in learning to talk, and we certainly should assist them in learning to properly prepare, to properly grind their food. Lessons in mastication should be a part of the training of the infant. Mothers should study not merely how to please the palate, they should familiarize themselves with the primary principles of physiology to the extent that a proper selection of food may be made in order to attain the completest nutrition. Variety is the spice of diet. Not only does the palate demand variety; but the tissues as well. Let us not forget to remind the mothers that the five digestive fluids are, from the beginning, dependent upon the proper activity of the digestive glands, which are a part of the glandular system, and that the entire system must be doing proper work or else the individual glandular organs will become crippled. Reasonable muscular exercise should be insisted upon, and if the child be too young to exercise himself, he should be given the benefit of massage, with daily trips in the fresh air from the very earliest weeks of infantile life. There is far less danger from taking cold in the winter time than there is from being poisoned from breathing bad air in close, ill-ventilated rooms. With the surface properly protected there is no danger from cold air. In many homes there is more sewer gas than oxygen, and much of the loss of appetite, and impaired nutrition in the child's life is due to a neglect of general and personal hygiene. The child that is prop-

erly clothed can, from the very first months of its existence, almost live out of doors the greater part of the day time, winter and summer. There can be no demand for fuel in any furnace unless there be drafts; there can be no consumption of fuel unless there is plenty of oxygen.

It goes without saying that the well-nourished, well-cared for, plant or tree can withstand the ravages of the elements better than the stunted one. This truth is illustrated among children when zymotic disease is threatening them with its ravages. The well fed child, the child that has a clamorous appetite, whose diet is well selected, whose digestion is well performed, who takes plenty of physical exercise, who lives out doors and is well clothed, breathes plenty of oxygen, for instance, rarely takes diphtheria, and when he does, unless there has been dire neglect of the preliminary announcements of the disease, the case can probably be easily managed, at least in the majority of cases.

Of course the consideration of all these hygienic points of early life does good only in the direction of equipping the child in a manner to resist disease. When we are brought face to face with a case of bona-fide, well-developed diphtheria, happy are we if the child has had proper management from birth. If it has not we have all the more reason for availing ourselves of the opportunity for good which lies in the direction of nourishing the afflicted one in a manner to give him the greatest power of resistance against the diphtheritic virus. I claim that we are neglectful of our duty if we do not preach, yea, if we do not almost fanatically announce, in season and out of season, to the parent of the child under our care the importance of oxygen, and exercise, and fresh air, and urge the giving of a diet easy of digestion and assimilation, and likewise of excretion. I repeat that we should teach the mothers not only to know what goes into the child, but also carefully observe what comes out of it, and train them in the direction of recognizing variations from the normal of the various secretions of the body. The child not only runs the risk of poisoning from the sewers within our homes, but there is danger of sewerage poison from its own sewerage system, particularly if it be permitted to become clogged and gorged.

Feeding the Young.

BY O. H. PHELPS, M.D., OF BLOCKSBURY, CAL.

It goes without saying that a large majority of the children who die under the age of 5 years perish from diseases of the alimentary canal, and in large cities the rate of mortality is such that even Malthus would doubtless call a halt. That other causes than bad feeding come in for a share in the work of fatality we will not deny, neither will we discuss them in this paper. That bad feeding is the principal cause is fully borne out by the writer's observation and experience.

What is bad feeding? Mother's milk when the mother herself is badly fed all through the period of gestation and lactation; when her alimentary canal contains more or less fermenting material from access of undigested hydrocarbons; and her whole dietary lacks tissue building material to fairly support her own body, much less that of her child. A hungry man is quarrelsome and discontented—see the Irish people fed on potatoes. An under-fed mother is weak, nervous and fretful, and the effect of this alone is often disastrous to her child. The writer recalls a case where the child several times nearly perished in convulsions caused by an explosion of anger in the mother who was badly fed, weak and nervous. He advised weaning the child and all trouble ceased.

We will not discuss the proper feeding of the mother here, but would refer to a little book by Dr. E. Cutter, of New York, "Food in Motherhood," which we heartily commend for its treatment on this important subject.

A very common practice prevails among all classes of people of feeding solid food to infants 2 months old and upward. Sometimes they commence younger. That the digestive organs are not sufficiently developed to digest solid food is indicated by the lack of teeth to masticate with. And this may be taken as a safe guide as to the proper time to commence giving solid food. And if the child is bottle fed, sugar is usually added to the milk to assist in the alcoholic and acetic acid fermentation, and as a logical sequence of such outrageous feeding nature throws up the

sponge and the doctor is called who often has to follow suit. Emaciation, colic, acrid dejections passing through the bowels, a burning seething liquid mass, only a little less irritating than molten lead.

How shall we feed to avoid all this?

First, don't give mother's milk, if it is bad milk. Don't ruin the child's digestion by persistent nursing when it is evident the mother can not furnish good milk. Don't give impure cow's milk, and good or bad, don't put sugar in it. Don't put starchy food in the child's—shall I say yeast pan?—unless you want more yeast, more colic, more cholera infantum, more dead babies.

Pure cow's milk sterilized will usually be well borne, if the digestion has not previously been ruined. This failing give beef essence and pepsin.

The writer has usually had indifferent success with the so-called infant foods of the shops. A child that can digest the best of them can as well or better digest a gruel, made of milk slightly thickened with meal made from twice baked bread. The bread made of entire wheat flour, is best when it comes with the advantage of cheapness and known purity, which can not always be said of commercially prepared infant foods. There are some nice formulas for taking out a portion of the caseine from cow's milk and otherwise making it as near like mother's milk as possible all of which are good on paper, but often very impracticable to be carried out, among the majority of the clientele of the busy practitioner. Some cases from practice will illustrate some of the results of bad feeding and their treatment. (Cases were here related.)

These will suffice to illustrate some of the conditions brought on by bad feeding. Very little medicine is needed in most cases. When indicated pepsin and salicin may be given. It is also desirable to flush the colon with warm water frequently.

The proper food is milk up two or three years of age, after that bread made from entire wheat flour (fine wheat flour is deprived of most of the tissue building material contained in wheat,) milk, eggs, lean beef and mutton, fruit without sugar; in fact sugar not at all.

Such a course will give less work to the undertaker, dentist; and doctor.—*Journal American Med. Ass'n.*

Suggestions of a Method of Changing Bodily Form by the Administration of Certain Foods.

That the nature and quantity of food taken by an animal modifies its economy in many directions is well known. That it is capable of inducing changes hitherto possible only by cross breeding is probably new to most. Prof. E. Fischer (*British Medical Journal*), the chemist who has devised the synthetic production of grape sugar, fruit sugar, and a whole series of new sugars, touches upon some of the problems of mutual interest to the chemist and physiologist. He says:

Next to the albumens the hydro-carbons form the chief food of the animal kingdom. Many valuable observations have been made concerning the processes they undergo in the animal body. What would be the result if artificial sugars were substituted for the natural hydro-carbons? Mannose, so closely related to grape sugar, and so easily fermented by yeast, might very probably form a good food stuff, even for the more highly organized animal body; and yet the slight change in substance might cause corresponding changes in the vital processes. If mannose be taken as food will the liver produce a new glycogen, and the mammalian gland a substitute for milk sugar; and will this sugar be oxydized in the body of the diabetic? The changes in the animal organism could not but be still more decided, if one could succeed in feeding the animal body with a pentose or a heptose, or more easily fermentable nonose. One would then probably find that blood and tissues would modify their functions, that the pig and goose would produce a changed fat; the bee a changed wax. Indeed, the experiment might be carried still farther. The assimilating plant prepares from sugar not only the more complicated hydro-carbons and the fats, but also with the help of inorganic nitrogenous compounds, the albuminoids. Certain classes of bacilli have the same power. Now, if it were possible to feed the assimilating plant of these bacilli with a differently constituted sugar they might possibly be forced to form a changed albumen! May we not then expect that changed building material will lead to changed architecture?

We should thus gain a chemical influence on the foundation of the organism which would necessarily lead to the most extraordinary phenomena, to changes in form far exceeding all that has been reached by cross breeding, etc. Since the fundamental experiments of Wohler and Frerichs, physiological chemists have incorporated hundreds of organic substances with the animal body, seeking the products in the urine; but they almost exclusively have used substances having no likeness to natural food stuffs. The use of the new series of sugars offers a wide field of action to the physiologist, and may be attended with results far more extraordinary. Biology here stands before a problem which could not have been until chemistry had prepared material for the experiment.

CAMPHORATED NAPHTHOL.—This mixture is composed of one part of naphthol and two parts of camphor, triturated together *dry*. Delsesquells discovered that naphthol liquefies in camphor, and M. Bouchard has shown the considerable antiseptic power of naphthol, and its great advantage in being non-toxic. He advises the use of camphorated naphthol as a topical antiseptic, having used it in many cases of excoriations, wounds, and ulcerations, and in diphtheria, as an application to the throat.—*Jour. Amer. Med. Asso.*

EMBRYOLOGY.—At the Leeds meeting of the British Association for the Advancement of Science, Professor Milnes Marshall, in his presidential address to the Biological Section, said that embryology had thriven mightily of late years; but the watching of all the processes of development was of trifling account compared with the great generalization, which showed that the development of animals had a far higher meaning. The phases through which an animal passed in its own development were no accidental freaks, but represented more or less closely, in more or less modified manner, the successive ancestral stages through which the present condition had been acquired. Evolution told us that each animal had had a pedigree in the past

embryology revealed to us this ancestry, because every animal in its own development repeated this history. Such was the recapitulation theory. This had been hinted at by Agassiz, suggested more directly by von Baer, but first clearly enunciated by Fritz Muller; it has since been elaborated by many, notably by Balfour and by Ernest Haeckel. "Natural selection" explained the preservation of useful variations, but it did not account for the formation and preservation of useless organs. "Recapitulation" solved the problem at once by showing that these organs, though now useless, must have been of functional value to the ancestors of their present possessors, and that their appearance in existing forms was due to repetition of ancestral characters. Man himself presented many such features. The existence in the human adult of ear muscles which he did not use, of gill clefts in the embryo that never possessed functional importance, furnished suggestions of past history identical in the lesson they gave with that which the linguist found in the retention of a silent consonant in some words. The principle of degeneration, also, should not be overlooked. Professor Marshall emphasized the importance of Kleinenberg's theory as to the development of new organs, but said it was yet too early to realize the full significance of it. Embryology, though, could not provide an immediate or complete answer to the great riddle of life; it was a means; not an end.—*Medical Record*.

The Ten Health Commandments.

1. Thou shalt have no other food than at meal time.
2. Thou shalt not make unto thee any pies, or put into pastry the likeness of any thing that is in the heavens above, or in the earth beneath, or in the waters under the earth. Thou shalt not fall to eating it, or trying to digest it. For the dyspepsia will be visited upon the children to the third and fourth generation of them that eat pie; and long life and vigor upon those that live prudently and keep the laws of health.
3. Remember thy bread to bake it well; for he will not be kept sound that eateth his bread as dough.

4. Thou shalt not indulge sorrow or borrow anxiety in vain.
5. Six days shalt thou wash and keep thyself clean ; and the seventh thou shalt take a great bath, thou, and thy son, and thy daughter, and thy man-servant, and thy maid-servant, and the stranger that is within thy gates. For in six days man sweats and gathers filth and bacteria enough for disease ; wherefore the Lord hath blessed the bath-tub and hallowed it.
6. Remember thy sitting-room and bed-chamber to keep them ventilated, that thy days may be long in the land which the Lord thy God giveth thee.
7. Thou shalt not eat hot biscuit.
8. Thou shalt not eat thy meat *fried*.
9. Thou shalt not swallow thy food unchewed, or highly spiced, or just before hard work, or just after it.
10. Thou shalt not keep late hours in thy neighbor's house, nor with thy neighbor's wife, nor his man-servant, nor his maid-servant, nor his cards, nor his glass, nor with any thing that is thy neighbor's—Austin Bierbower, in *Phrenological Journal*.

UNIFORM NOMENCLATURE IN ANATOMY.—The establishment of a uniform nomenclature in anatomy, which was taken in hand by German anatomists about a year ago, has now become an international affair, and the committee appointed for the purpose, which has hitherto consisted exclusively of Germans, now numbers three foreign members—namely, Leboucq, of Geneva ; Cunningham, of Edinburgh ; and Romiti, of Pisa. The expenses of the task are to be borne by the learned corporations of Germany, because the Anatomical Society, which began it, does not possess the necessary funds. The Prussian, Bavarian, and Saxon academies of science have contributed 1,500 marks (nearly £75) each, the Academy of Vienna, 1,000 guildens (about £85), and the Anatomical Society 1,000 marks (nearly £50). The completion of the work will be entrusted to a commission presided over by Professor von Kolliker, of Wurzburg. The preliminary work is to be done by an anatomist of special qualifications, including the necessary philological attainments.

—*Lancet*.

A Case of Occlusion of Steno's Ducts.

In the *Medical Record*, November 29th, Dr. B. C. Loveland reports an interesting case of occlusion of Steno's Ducts. The patient, a lady of middle age, had been troubled with a dry mouth since she had diptheria twelve or thirteen years ago. Dr. Loveland described the appearance of the mouth as follows:

"Her mouth was indeed dry, for, as I looked into it there seemed only a sticky mucus about the teeth and under the tongue. And when I took hold of her lips and cheek to look for the openings of Steno's ducts, the mucous membrane wrinkled like dry tissue-paper does when stretched. I could not see at first the openings of the ducts, and could not press any saliva out. But when she attempted to eat, the parotid glands would swell up so as to make her look like a patient with the mumps."

The ducts were opened by introducing a small sized probe, Bowman's No. 1, and subsequently using larger sized probes, until a No. 8 Bowman probe could be used freely, the treatment being given every day for a while, then every other day, and then once a week, the length of time from first treatment to close was from March till June.

Dr. Loveland further describes the case:

"It was a long time after the ducts were well opened before the salvia took on a normal appearance, for at first it was about like the white of an egg, and had to be pressed out. It also contained some pus. She assured me that she had been unable to chew solid food, and had lived almost entirely on liquids, for more than a year and a half before I saw her, and had much discomfort even in taking liquid food, on account of the swelling and pain caused by the secretion of salvia, which could not find exit and had to be taken back into the tissues. She had considerable trouble with the lymphatics of the neck as a result."

Dr. Loveland states that the strictures in the ducts were probably the result of diptheria inflammation.

Selection from a Clinical Lecture,

BY WM. GOODELL, M.D., OF PHILADELPHIA.

We now ask ourselves, What are dermoid cysts? This is a question in regard to which pathologists have not yet become satisfied. We generally find in them hairs—most commonly of a light color—and teeth. We sometimes find in them bone fragments, but the most common constituents are hairs, teeth, and cheesy material such as comes from sebaceous glands, viz : skin products, and it is for this reason that these curious growths are called *dermoid cysts*—in other words, skin-like tumors.

For a long time they were explained by what I call the “blasted theory”—partly because I can not understand it, and partly because it contends that the epiblastic portions of an ovum, which form the skin, hair, and teeth, become misplaced by dipping down into the hypoblast and becoming mixed up with other embryonic cells. Dermoid cysts are sometimes found in the testicles, but more commonly in the ovary, so that the theory is now gaining ground that they are, as a rule, developed from some addled human eggs, and it is no longer considered necessary, as it once was, that an ovum should have been fructified by the spermatozoa in order for it to become the basis of a dermoid cyst.

Another theory once in vogue was that of parthenogenesis, or virgin birth; that is to say, imperfect effort at transmitted fertility—a property peculiar to many insects—the aphidæ, for instance—one copulation being sufficient to keep up fructification for several generations of descendants. Let us here take the opportunity, while I am on this subject, to correct the statement I made in the beginning of my lecture that this trouble in the case before us was probably of specific origin, as this tumor abundantly explains all the symptoms without an appeal to syphilis.

The Dental Protective Association is increasing in numbers constantly. Every honest dentist should be a member, as it will insure immunity from senseless litigation.

Treatment of Diphtheria.

That this disease is to be classified among the acute infectious disorders, dependent upon a specific infectious micro-organism, is now generally believed. Whether the disease is at first a local trouble with secondary infection of the organism, or whether it is a constitutional affection from the beginning, with local manifestations, are questions upon which the profession is still divided. Certain it is that abundant clinical experience has taught the value of antiseptic applications to the affected part. This rule has been evolved in the face of constant reiteration of the constitutional nature of the infection, and the consequent valuelessness of such local treatment. We may remark in this connection that recent experimental work upon the Klebs-Löffler bacillus has shown that it is capable of producing an exceedingly poisonous albuminoid, when grown in nutrient media. This experimental fact lends additional weight to the clinical value of local antiseptic measures in this disease.

Dr. Herman Wolf, *Therapeutische Monatshefte*, September, 1890) has borne strong testimony regarding the antiseptic value of methol in these cases. He proceeds according to the following method: A powder is prepared containing one part to ten or twenty of sugar, this, by means of a camel's hair pencil, is carefully applied to the false membrane and inflamed mucosa, which should have been previously cleansed from all secretions; if the nose is involved small quantities are blown into the anterior nares and post-pharyngeal space. If the process has extended to the bronchial, it may be employed in the form of a fine spray by inhalation. He claims for methol that it is quite free from toxic properties, is pleasant in odor and taste, and has a greater antiseptic value than most of the usual gargles and sprays. Of the value of complete and early local antiseptics he has no doubt.—*Journal of Amer. Med. Asso.*

THE University of Basel, the only university in Switzerland that has excluded women students, has just decided to admit them to the medical department.

What is the Best Method for Preventing Infection of Operative Wounds?

In a paper read before the Illinois State Medical Society, Dr. L. M. McArthur stated that one-half of the primary wounds, under the present methods, are dressed aseptically at the time of the operation, and then only become infected at the redressing. Operators under excitement are inclined to drop into careless habits, and proceed somewhat after the following fashion: They call for a questionable basin, and dropping into it an indefinite amount of carbolic acid, proceed to remove the dressings without any such formalities as we were satisfied were essential at first. Here is where the fallacy lies to-day. Too great carelessness at the redressing permits infection, and encourages the skeptical in the belief that there is nothing in the principles of aseptic surgery. Before the old dressing is removed a stream of 1 to 1,000 should be ready and playing on the inner layer of gauze as it is being removed, and during the time of exposure of the wound. Having rendered the parts clean, they can best be kept so by providing, in addition to the regular dressing, a heavy dressing of absorbent cotton, not with the idea of catching the discharge, but with the object of filtering the atmosphere which is to gain access to the wound through the dressings.—*Medical Record*.

The Action of Chloroform and Ether.

Professor MacWilliam, of Aberdeen, has just published the results of a long and elaborate investigation of the above subject, covering a period of two years, in which a new method of studying the heart and blood-vessels has been adopted. His report is presented to the Scientific Grants Committee of the British Medical Association. It is demonstrated that chloroform exerts a direct influence on the heart—depressing its energy, diminishing its tone, and dilating its chambers. Moreover, such a depressing effect may be brought about by chloroform when given mixed with abundance of air (under four per cent. of chloroform vapor), and when the amount of the anæsthetic administered is

not sufficient to abolish the conjunctival reflex. The mode of cardiac failure under chloroform is not a sudden arrest of the rhythmic action, but a more or less sudden dilatation and enfeeblement of the organ, causing the rhythmic contraction to be ineffective. Examples are given of death from cardiac failure while the respiration went on for many minutes. The different action of ether as compared with chloroform is strikingly marked. Ether usually causes abolition of the conjunctival reflex and profound anæsthesia with no depression of the heart, or only a brief and trivial one.

Reunion of Cut-Off Tongue.

Dr. N. C. Davis, of Good Thunder, Minn., in September, 1884, was summoned to see a boy seven years of age who had been kicked by a horse on the right cheek, breaking off the first bicuspid tooth. The tongue was cut entirely off at the junction of the tip with the base, or the posterior portion of the frænum linguæ, with the exception of a few fibres of the tongue and mucous membrane on the right side. When Dr. Davis arrived the end of the tongue was protruding from the mouth. The hemorrhage was controlled by a dilute solution of persulphate of iron. Dr. Davis drew the base of the tongue forward with a tenaculum. Then the apex was brought into apposition with the base, and secured by five silk ligatures above on the dorsum, and seven below. The boy stood the operation well, and the hemorrhage was trivial. The balance of the treatment consisted in syringing out the mouth twice daily with a solution of boracic acid, and putting the patient upon a liquid diet. The tongue healed nicely, with the exception of a small portion on the left side, which sloughed out and left a small notch, which was nearly replaced by granulation. The doctor discharged the patient in about three weeks, with the tongue full length, and articulation good.—*Northwestern Medical Journal*.

The Question of Shock During Operations Under Anæsthetics.

A correspondent referring to recent notices of deaths under chloroform, draws attention to the fact that it is expressly stated that in one case deceased was not deeply under when the operation was commenced and completed; whilst in the other, death occurred before the patient was completely anæsthetized. Many observers have noticed what they regarded as reflex syncope during imperfect anæsthesia, and Dr. Lauder Brunton, we believe, both in his lectures and in his "Pharmacology," laid down that imperfect anæsthesia rendered the patient peculiarly liable to cardiac failure through afference of sensory impressions conveyed from cutaneous or visceral nerves. It is certainly a commonly recognized phenomenon that trying the spermatic cord, handling the intestines and dragging upon intra-abdominal viscera produce, even under chloroform, not only marked variations in the pulse, but also variations in the rhythm of respiration. During the experiments made by the recent Hyderabad Commission, it will be remembered that no such interference with the heart's action appeared to occur in dogs, at least as far as the Commission were able to reproduce in the lower animals the more complete conditions of the experiment as presented by human beings undergoing an operation under chloroform. In settling this and kindred questions, we shall probably have to recognize as a factor the difference arising from the greater or lesser elaboration of the nervous system in the animals, human or otherwise, under investigation.—*Lancet*.

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CHILBLAINS.—Prof. Morrow is crediting with this apparently excellent formula for chilblains:

R. Acidi carbolici.....j drachm.
 Tincture iodini.....ij fluid drachms.
 Acidi tannici.....j drachm.
 Cerat. Simplicis.....iv ounces.

Misce bene ut ft. ungt. Sig. Apply two or three times a day.

Bone Grafting.

In *The Lancet* is reported a case of bone grafting with decalcified bone chips at the Edinburgh Royal Infirmary. The case was that of a farmer, aged forty-four, with chronic inflammation of the bursa under the right ligamentum patellæ, and abscess in the head of the tibia. The swelling was opened and the gelatinous contents removed, the abscess cavity cleaned out, a drainage tube introduced, the wound dressed antiseptically, and a splint applied. The tibial cavity did not show signs of closing, so that it was determined to stuff it with decalcified bone. A piece of ox's rib was scraped, decalcified with weak hydrochloric acid, pressed clean, soaked in carbolic solution—one in twenty—for forty-eight hours, and cut in small pieces. The tibia was scraped and gouged to afford free access to the cavity, which was stuffed with the decalcified bone shavings. As these did not entirely fill the cavity the operator added the pieces of bone that had been removed and kept in boric acid solution. The cavity was two inches in diameter. It closed very rapidly, but the probe could still enter about an inch, and bare bone could be felt. Several pieces of necrotic bone were removed, being evidently those that had been gouged out and returned at the time of the operation. A very small sinus remained when the patient was discharged, but was soon reported to be closed. Dr. Miller remarks that the closure of the cavity was facilitated by the use of decalcified bone, as recommended by Senn, and that this was superior to the fresh bone, which was actually a hindrance. The bone cavity quickly filled with granulations, but the external wound remained open till all the necrosed bits of fresh bone came away. There was never a drop of pus, and the temperature never rose over 100° F. The dressing employed was iodoform and wood wool mostly, and all dressing was done under the spray.—*Times and Register*.

THE subject of asepsis and antisepsis is again brought to mind by the free discussion in the late congress. The whole subject resolves itself into one word, according to our mind: "Cleanliness," aided or unaided by antiseptic agents.

THE Second Annual Meeting of the Dental Protective Association, of the United States, was held at the Grand Pacific Hotel, Chicago, Dec. 16th, 1890. The President, Dr. Crouse, called the meeting to order and spoke as follows:

Our second year closes full of encouragement. Last year at our first annual meeting we had represented, in person and by proxy, 648 members. This, our second annual meeting is represented by nearly 1500 members showing that the membership has more than doubled during the year.

We have driven the Tooth Crown Company from Milwaukee where they had commenced suits against five members. Our attorneys entered a motion asking the Court to set and limit the time when all the testimony should be presented by the Crown Company. After hearing the arguments of the counsel on both sides, the Court limited the time to twenty days and before it was up the Tooth Crown Company withdrew all the suits at their own cost. A similar move in Baltimore, where six of our members had been sued, and we had taken charge of their suits, caused the Crown Company to withdraw all these suits at their own cost. This demonstrates the correctness of what we have all along claimed that the International Tooth Crown Company did not dare to enter into a fair contest as to the validity of their patents.

They have now commenced suits in New York and answers will be filed in due time. We accept licensees on same terms as others and afford them the same protection with the exception of a few licensees located in a very limited portion of the country.

The Dental Protective Association has been giving absolute protection to the entire dental profession while, thus far, less than one tenth of the whole number has joined our association.

We want every member of the profession to unite with us. Ten dollars is but a trifle for each dentist to pay for the protection and benefits he receives. Think of 15000 dentists in one association! Who can estimate the great good that such an organization can accomplish? Is it a dream? No! I expect to live to see it. It only depends on the amount of exertion the present 1500 members put forth. Let every member during the year get three new members. It will be an easy way to treble our membership which is the great work of the coming year.

We have saved the Dental Profession a million of dollars the past year and better still saved many of its members the humiliation of signing a license that robs a man of his manhood.

I want a committee appointed from this association, to examine our books and methods of doing the work.

On motion Drs. Gilmer, Fernandez and Ames were selected.

The election of a Board of Directors resulted in J. N. Crouse, T. W. Brophy and E. D. Swain being elected their own successors. After further routine business the meeting adjourned.

J. N. Crouse, President.

E. D. Swain, Secretary.

REPORT OF COMMITTEE.

After a careful examination of the management and accounts of the Protective Association of the United States, for the year to date, we have come to the conclusion that it is being managed carefully, economically and with good judgement.

We know positively that the chairman is giving to this work, much thought and time, which is the same as money to him; that during the year, he has attended several dental meetings, in the interest of the association; that he has devoted much time and labor to organizing the profession and in attending to its litigation, and that he has done all this entirely at his own expense and without one dollar of cost to the association.

The entire office expense of the association for the year amounts to (\$240.00) two hundred and forty dollars and that for clerical help.

The Protective Association is saving hundreds of thousands of dollars annually to the profession, and we believe it to be the duty of every practicing dentist to assist its grand work by paying the membership fee and becoming identified with the association.

It is certainly unjust that a few should bear the entire expense for the benefit of the whole profession, and it is demoralizing to those who quietly accept the fruit of this injustice.

We would further recommend that, as soon as the management

think it advisable, after due notice to the profession, the books be closed, and the protection of the association be withheld from non-members.

Thos. L. Gilmer	}	Committee.
E. M. S. Fernandez		
W. B. Ames		

EDITORIAL.

Chancres of the Fingers.

In another column of the REGISTER we called attention to the care of the hands, urging the necessity of properly cleaning the hands and finger nails before all operations upon the teeth.

In the Jan. 17th number of the *Medical Record* appears a leading article which was read before the section on Genito-Urinary Surgery of the New York Academy of Medicine, by R. W. Taylor, M.D., bearing the title which appears at the head of this article. The whole article with its superb illustrations would be an interesting publication for any dental journal, but we must rest content to publish in part that which most concerns the dental profession. Dr. Taylor says:

“Chancres of the fingers contracted in operations, examinations, and manipulations are not uncommon among obstetricians, surgeons, and midwives, and they are occasionally seen upon the hands of some luckless laymen as the result of their handling or lascivious fondling the infected genitals of some female. *They are also observed in dentists, contracted in operations on the mouths of syphilitic patients.* (Italics are ours).

They may be seated upon the finger pulp, or around the nail. Syphilitic finger-infection has been seen in children and women as a result of picking or dressing the hard chancre of a second party. Finger-chancres as a result of a bite by a syphilitic person are also occasionally seen. Chancres of the knuckles and fingers have been known to follow a blow delivered upon the mouth of a person suffering from specific lesions. These chancres are prone to form at some part of the nail margin, also on

the sides and pulp of the finger, and along its continuity. In the greater number of cases they are due to the infection of a small fissure, a chap, an excoriation, or a cut, or to the lodgement of the virus between the nail and its tegumentary fold. Any skin disease of an inflammatory, or hyperplastic nature situated upon the fingers, or hands, may afford a port of entry for syphilitic infection.

The following extract is significant :

“The fact of the not uncommon occurrence of chancres upon the fingers of surgeons, physicians, and midwives, suggests to us the danger of syphilitic infection to their patients.”

This, kind reader, is of ultra importance to consider even as a class of dentists. Whilst we do not believe that chancres may be found on the fingers of many dentists, yet they do occur, and may innocently have been infected. Dr. Taylor relates that physicians afflicted with syphilitic finger-infection have attended to their administrations to patients while ignorant of their own disease. Neisser says that he knows of four (4) infected assistants who keep on with their professional work notwithstanding their finger-chancres. It is strange that more infection does not take place.

Dr. Taylor further says: “It is evident that surgeons afflicted with syphilis are much less liable to infect their patients than obstetricians, particularly in these days of thorough asepsis and antisepsis.”

Mark the following language :

“With the care that surgeons give to the perfect cleansing of their hands before operations, and with the fear in their minds (which is quite widespread) of receiving syphilitic or other infection through any lesion of continuity in the event of their having a chafe, a fissure, or any suspicious sore, or hyperplastic papule, nodule, or mass on the fingers, will, I think, cause them either to give up the operation, or take measures for the thorough protection of their fingers.

Then, again, the profuseness with which antiseptics, both liquid and pulverulent are used in operations, will undoubtedly do much to prevent syphilitic infection.” Continuing he says :

“The period of greatest danger from finger infection by medical men is in the early days of the chancre, when it is small (like a chafe, a fissure, a mildly excoriated papule, or seemingly like a simple but troublesome hangnail, or a mild form of paronychia), and when its nature is not suspected. In this period, as a rule, it is very little, if at all, painful; it has not an angry or an inflamed look, but on the contrary, presents a benign, even insignificant appearance. In this stage, luckily, its secretion is very scant, and to this fact, therefore, many instances of immunity are undoubtedly due. But even under these circumstances the tissue-elements may be deposited from the infected finger upon a wound in the patient, and syphilis may ensue. Then, again, these seemingly mild lesions may issue to blood, which, if deposited upon an excoriated, exulcerated, or cut surface may convey the syphilitic poison. Though syphilitic blood infection is less prompt, active, and constant than infection from primary and secondary secretions and lesions, its danger should always be remembered, feared, and provided against.”

“Chancres of the fingers in professional men usually cease to be dangerous to their clients when they have reached their full development.”

“I have often wondered why many physicians and surgeons who have consulted me have remained so long in ignorance of the syphilitic nature of a finger chancre, and why it has not been recognized by their fellow practitioners to whom they have applied for diagnosis and treatment. I think it will be generally found when a surgeon, physician, obstetrician, or *dentist* has a chronic, indolent, aphlegmasiac ulcer or nodule on his finger, particularly when near its tip, the lesion is, at least in the majority of instances, the forerunner of syphilis, especially if it has a bluish fungoid appearance, or the look of a piece of raw beef stuck on the finger end. Yet many think that they are the victims of some obscure blood-poisoning, or tuberculous infection.”

The foregoing facts indicate very forcibly the duty of the dentist to refrain from touching his patients, making examinations, performing operations without a proper cleansing of the

hands and finger-nails even though not infected himself he is liable to carry it from one patient to another.

Impervious court-plaster should always be possessed and ready to cover a cut of the finger, and a solution of bichloride of mercury is now found to be a necessity in a dental office. Accidentally an excoriation of the skin may occur, and sometimes a finger-cot may be used when deemed necessary in order to keep moisture out of the bruise. These and other things and methods may be devised to meet the wants on occasions where syphilis may be suspected. It is unnecessary to say that all napkins and rubber-dams used in such cases should be destroyed. W.

Instruments.

Prof. Woodbury, of the Medico-Chirurgical College of Philadelphia, commences a paper in the follow language :

“ It is a trite observation that every workman requires good tools in order to do his best work. If this work is inferior in quality the fact that he used poor tools will not excuse him to his patrons.

He is held responsible for, and is judged by his results, and failure will be attributed to lack of ability, or practical skill.

It is, therefore, the duty of every master workman to see that his tools are of good quality, and that they are in perfect order.”

In a like manner it is the duty of every dentist to personally acquaint himself with the quality and character of every instrument he uses, and also of the action of every drug that comes within his province to use. We are so apt to become empiricists ! Let each and every action or thought be that of reason. Gain a knowledge that will serve you at all times. This knowledge must be *practical* to succeed as a dentist. Theory has its place, and it helps to enlarge our studious natures.

What is the dental profession ?

It is a collective body of persons engaged in the practice of preserving the natural teeth and contiguous parts, also supplying artificial means in event of the loss of any part, or otherwise adding to the organs such conditions as may be deemed necessary for use and beauty.

What is the prime object of our work ?

Naturally we work for a subsistence, but when a given operation is to be performed, the object that the patient seeks is *result* ! We strive for a perfect result of our work, and then the pecuniary reward follows in exchange for the result the patient has procured through our skill and knowledge. We must, then, to produce these results have the means at our command, and this implies *good* instruments, *good* remedies, *good* eyes, *good* skill, *good every thing* !

Dentists have become lax in their selection of instruments ; selecting perhaps the cheaper ones. If, then, we can not pay a fair price for a *good* instrument is it any wonder then that the market is flooded with instruments of poor material and ill-tempered ?

The remedy for the evil is to demand of the manufacturers a superior article, and pay them for it. It is cheaper to buy one first-class instrument than several poor ones which will last only as long as the good instruments.

This is an important matter, and it is golden advice to the beginner when told to select fewer instruments, and those of the very best material. These can be had at any time of reliable firms. Quantity of instruments do not make the dentist. Of course there are a large number of instruments that are necessary. The maintenance of proper care of instruments we hope to speak of in a future number of the REGISTER. W.

Cleanliness.

Personal purity of the dentist is a necessity. It is an egregious fault, and in fact, an almost criminal circumstance for a dentist to be filthy about his person or instruments. Cleanliness should be a banner word for the professional man whose contact with ladies and gentlemen is at all times demanded. In general the dentist should be decently dressed, not flashily, but rather, should wear good plain clothes. Clean linen bespeaks a clean operator. Odors emanating from the pores of the skin should not be covered with the quart of cologne. Baths through the

week, and daily sponge baths throughout the year, removes offensive debris of the secretions of the body. In summer hot baths should be limited. Special attention should be paid to the feet. Their close confinement in leather make them warm and sweaty, and tiredness is easily produced. Shoes with heavy soles will lessen chances of the becoming tired, experience teaches this. A change of shoes is often beneficial, but better still is at noon-time soak the feet in running water, or a bucketful of water to which has been added some ammonia and borax, or either alone. This will make one feel like new, and the afternoon's work will seem easier. Tight-fitting clothing should be avoided. A tight collar will interfere with bending the head, and at the same time pressure upon the muscles of the neck will retard the flow of blood, producing among other things disturbances of blood supply to the brain, and also have its effect upon the eyesight. Good feet are a part of a dentist's capital, and care should be taken that they are properly encased with good-fitting shoes that will in no way cause pain or weariness.

A good preparation and care of the body is conducive to a steady hand and good eyes.

Another factor that is of very great importance concerning the personal purity of the dentist is the hands. There is as much necessity to care for the hands as for instruments.

Filthy and criminal indeed is he who would operate in one patient's mouth, and then turn to another without proper cleansing.

Diseases may be carried with the hand as well as with an instrument, but the principal way of carrying infection is the finger nail. Of course it is not the nail that poisons, but something that is on, or under the nail. In seventy-eight examinations recently made in Vienna (says the *British Med. Journal*) of the subungual spaces, there were found of micrococci 36 kinds, of bacilli 18 kinds, of sarcinæ 3 kinds, and common mould spores were very often present.

Personal cleanliness should be insisted on in everybody, but how necessary it is for the dentist.

Under this heading might properly come the offensiveness of

a liquored breath, or tobacco stench. Whisky ruins a good dentist, and tobacco will make him nervous. Leave whisky, women, and tobacco alone is wholesome advice for all. These and other matters of minor detail are things that every dentist should observe and study.

W.

Acid Fruits.

The desire shown by the sick, and especially by those who are getting well, for acid fruits, as baked apples, cranberries, lemons, etc., should never be disregarded.

The important use the acids of fruits play in the body is a long story, so we can only insist upon regarding these "cravings" wherever found.

Sometimes the physician has good reasons for not wishing them given as the acid may neutralize, or decompose some remedial agent employed, but, as a rule, these fruits, properly prepared, may not only be given without injury, but with decided benefit.

So, whenever a sick person "craves" such things be sure to call the physician's attention to it, and ask if you can give them.

The question is often asked for the advantage of persons in health as well as the sick at what time in the day fruit should be eaten?

In tropical countries, where fruit is the chief article of food, the rule appears to be that the earlier in the day it is taken the better it is, and the later, the worse. In hot weather many wise people will eat none after noon, alleging that the digestion declines in power with the decline of the day, and the fruit instead of digesting, *decomposes*, owing to the presence of the saccharine matter. The objection to fruit and certain kinds of vegetable, late in the day, be the explanation what it may, is certainly justified by an ample experience.

When "taken for tea," especially if the person feels somewhat exhausted from the labors of the day, they do not appear to digest, but decompose, irretating the stomach and bowels until rejected during the process known as cholera morbus. Whenever this occurs do not put in upon that scape-goat the "liver," and take another dose of purgative medicine, but on yourself, for what you ate some hours before, and under what circumstances. If you use your experience another attack need not be feared for a long time. Many fruits and vegetables, such as melons and cucumbers, particularly if eaten immoderately under such circumstances, acquire the reputation of being "unhealthy" instead of which the eater is unwise.

W.

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COMMUNICATIONS.

Aneurismal Tumor of the Right Alveolar Process and Vault of the Mouth Treated by Injection.

BY JOHN S. MARSHALL, M.D.

Professor of Oral Surgery, University Dental College: Visiting Oral Surgeon to St. Luke's Free Hospital and Mercy Hospital, Chicago, Ill.

Mr. C. B. H., of Chicago, American, aged 26 years, occupation traveling salesman, was referred to me December 26, 1888, for counsel and treatment, by Dr. M. Stout, of Chicago, with the following history: Some eighteen or twenty months previous to this examination the gentleman had submitted to the extraction of all his superior teeth except the central incisor. The operation was performed under nitrous-oxide gas; the mouth was badly bruised and lacerated on account of the difficulty in extracting the teeth. A few weeks afterwards he noticed a swelling upon the inner side of the right alveolar ridge which continued to enlarge as the months went by, and prevented the making of the artificial denture, which he was anxious to have placed in his mouth. There was no pain or uncomfortable feeling about the tumor except when engaged in vigorous exercise; at such time pulsation in the part would become very marked and disagreeable.

According to his own statements he had "consulted several dentists (?) in relation to the character of the swelling; some did not know what it was; one said it was an accumulation of pus, another that it was a '*watery* tumor,' and a third that it was a

'wind,' and asked the privilege of letting it out." This very kind offer, however, was declined, much to the permanent benefit and longevity of our patient.

Examination of the mouth revealed the superior teeth all gone except the central incisors and a pulsating tumor about one and one-half inches in length, by one inch in width, egg-shaped in form with the small end pointing forwards, and occupying the right side of the vault of the mouth from the outer wall of the alveolar process to the median line, and from the tuberosity of the maxillar forward to a line drawn through the cuspid region.

In character it was soft, fluctuating, compressible and with very marked pulsation. In color it was slightly deeper in tint than the surrounding mucous membrane. Upon puncturing it with an exploring needle a jet of arterial blood followed its withdrawal, and continued to spurt for about half a minute when the hemorrhage ceased.

The diagnosis was aneurismal tumor of the posterior palatine artery, with possible anastomosis with some branch of the superior maxillary artery, the result of injury in the extraction of the teeth. An operation was advised, and the gentleman agreed to report in about two months. Business engagements prevented his keeping this appointment, and when he next called to arrange for the operation, I was out of town on my summer vacation. He was also on vacation and could not wait my return and therefore sought other advice.

October 10, 1889, I saw him again at which time he gave me the following additional history: That in July he had been operated upon for the removal of the tumor and had nearly died under the operation from hemorrhage, and was afterwards confined to his bed for two months with blood-poisoning.

There was no improvement in the condition as described in the examination made a year previously; but the tumor was larger.

The surgical treatment of aneurisms is by ligating the artery near the cardiac or distal extremity of the sac, or both; by compression, either instrumental or digital; by the introduction of foreign substances into the sac like catgut, horse hair, or fine iron or silver wire; by manipulation; by acupuncture; by gal-

vano-puncture ; by the injection of coagulating fluids, and in the case of small anastomosing or cirroid aneurisms, by dissection.

The particular method adopted being controlled by the character and location of the aneurisms, the chances of danger to life, the possibilities of a cure, and the individual preferences of the operator. In all such cases as are susceptible of ligation this is by far the most satisfactory surgical procedure. But in those which, from their location, can not be reached by this method, some one of the other means may be employed.

In the case under consideration treatment by ligation, compression, manipulation, acupuncture, or dissection was out of the question ; the means at our command were, therefore, limited to three methods : the introduction of foreign substances like wire, etc., galvano-puncture, and injection.

Treatment by the introduction of foreign substances, either animal or metallic, seemed slow and unsatisfactory, and gave little hope of success, for I had been unable to find a single case on record of a cure by this means, while the dangers from embolism were great.

Galvano-puncture was considered too tedious an operation, from the fact that several would most likely be required to effect a cure, while the dangers from embolism and hemorrhage, as the result of sloughing at the points of puncture, made it seem extremely hazardous. I therefore decided to treat the case by injection though this method is by no means free from the dangers already enumerated. The injection method in aneurisms of large arteries is generally considered positively unsafe, and in those occurring in terminal branches of arteries, it has not met with much favor by the profession, chiefly for the reason that several fatal results from embolism were recorded soon after its introduction, and thus deterred many from giving it a trial in those cases which might be considered favorable.

The danger of this method in aneurisms connected with small arteries, it seems to me, are not in the method itself, but in the kind and strength of the coagulating fluids used.

The agents which have been suggested are numerous, among which are acetate of lead, acetic acid, iodine, ergotine, and the

perchloride of iron. The perchloride has generally been given the preference, used in small quantities and weak solutions of 1 to 2 per cent.

The injection of solutions in the above quantity and strength produce very slow coagulation, and when the clot is formed it is soft and friable, as a consequence it is easily broken up and floated away, giving rise to embolism in remote parts of the circulatory system, with all its accompanying dangers. The dangers in acupuncture, galvano-puncture, and the introduction of foreign substances into the sac are for the same reasons equally great.

The perchloride of iron is a vigorous coagulent, and quite escharotic and antiseptic when used in full strength. A 1 or 2 per cent. solution is very mild in its styptic and coagulent qualities; is not escharotic, and has no value as an antiseptic.

What is needed in the treatment of this class of cases is to produce a firm clot, instantaneously if possible, and to maintain it in an aseptic condition without the dangers of sloughing or hemorrhage.

In the perchloride solution of proper strength it would seem that we had all these requirements.

By the production of instantaneous and complete coagulation of the blood in aneurisms of this class and nevi, the dangers from embolism in remote parts of the body would seem to be entirely overcome, and thus one great objection to this method removed; at least this was my thought upon the matter, and I determined to try it in this case in preference to the other methods that might have been chosen.

In order to produce a complete and firm coagulum, instantaneously, it would be necessary to use a solution of much greater strength than had been previously recommended.

From the size of the tumor I concluded that in all probability it contained from one to one and a half ounces of blood, and that the introduction of five minims of the following solution: perchloride of iron one part, water four parts, would not be sufficiently escharotic to do any mischief, when diluted with this quantity of blood.

On December 22, 1889, I injected into the tumor five minims of the above solution, which produced the instantaneous coagulation, making the tumor feel as firm as a fibroma; considerable pain followed the injection, but this gradually subsided after a few minutes, but he complained for some hours of a strange fullness of the right side of the head. On withdrawing the hypodermic needle a little oozing occurred which immediately discolored the mucous membrane for a little distance around the puncture made by the needle. No other unpleasant symptoms followed.

December 28 the mucous membrane at the point punctured by the needle sloughed leaving an opening into the sac about the size of a silver half dime, exposing the hard clot. There was not the slightest hemorrhage, but considerable anxiety was felt for such an occurrence.

Tiersch's antiseptic solution was constantly used as a mouth wash during the whole progress of the case, and after the slough occurred the sac was syringed with the same solution at short intervals, day and night.

December 31 the clot was broken up and removed when it was found that the aneurism also occupied the antrum of highmore, and had produced absorption of the palatine process of the superior maxillary bone and the nasal wall of the antrum, leaving a large opening into the nasal fossa. The case progressed without a single drawback from this time onward. The opening into the antrum and floor of the nasal fossa finally closed. There has been no recurrence, and the patient considers himself perfectly well.

REMARKS.—The sloughing of the mucous membrane at the point of puncture proves that the strength of the solution was too strong for absolute safety, and should I be called upon to treat another case of this class, I should not feel warranted in using a solution stronger than one in six or eight parts in water. This, I think, would produce the desired results without the dangers of causing a slough and possible hemorrhage.

Salivary Calculous—Origin and Cause of Accumulation Upon the Teeth.

BY W. WILLIAMS, M.D.

The origin of salivary calculous is undoubtedly the saliva. Saliva is the secretion of two types of glands, the serous or albuminoid and the mucous. The former are situated outside the mouth and include the parotid, submaxillary and sublingual.

The mucous group include the glands and follicles that are situated or imbedded in the walls of the mouth and are the labial buccal, palatine and lingual.

The salivary glands are most active immediately before and during a meal. The mucous glands contribute most of the saliva between the meals.

The reaction of the salivary secretion is alkaline, that of buccal glands slightly acid, and that of mixed saliva slightly alkaline or neutral.

The saliva is composed of about five per cent. of solids, the balance water. The solid portion is made up of the ferment ptyalin, the salts of lime, potassium, sodium and magnesium, with the debris of epithetical scales and food. It is also rich in micro-organisms.

Saliva is a secretion and not an excretion, the latter is of no further use in the economy while the former is. The urine furnishes an example of excretion while saliva is an example of secretion, being of further use as an aid to the digestion of food. The substances found in an excretion are found as such in the blood and it is possible for an excretory organ to be removed and another organ to take on and perform its unfulfilled function. The secretions and excretions of the body are saturated with the different salts they hold in solution.

These solutions are subject to the same laws, both physical and chemical, that govern solutions outside the body. A saturated solution of common salt or nitrate of potash, for instance, will remain clear until a foreign body is introduced, when crystallization will commence around this nucleus immediately and continue until the whole volume is crystallized.

The saliva is particularly saturated with the salts of lime which have a special tendency to throw down a precipitate. The salts of lime differ from most of the other salts in being more soluble in cold than in hot water. The formation of calculi is rather common in all the secretions and excretions, particularly in the gall-bladder, where they are known as biliary calculi. In the kidneys and bladder they also occur and occasionally a calculous is found in the salivary glands or their ducts. Biliary calculi is found most generally in females and men of sedentary habits, perhaps accounted for from the precipitation of some of the elements of the bile in the gall-bladder from mere sluggishness. It is thus seen that the most guarded and best protected secretions are liable to have this calculous formation. Is it then any wonder that a deposition of calculous upon the teeth is common when we remember the composition of the saliva and the changes it is exposed to in the mouth. Every experiment is here played with it, freezing and boiling liquids, acids, alcohol, and a long test of other substances too numerous to even mention them, are daily mixed with it.

Disease, constitutional and local, want of use, physical and chemical causes, any one of these might vitiate, disturb and change the nature of normal saliva and cause a precipitation. We must not forget the micro-organisms that play such an important part in the saliva, which soon, when at rest, is rendered acid by the fermentation products due to their activity, the chief source of acid present in the mouth being due to these organisms. This fermentation takes place rapidly wherever the conformation of the teeth allows the process to be undisturbed.

Thus we see that there are various conditions always present that might cause a precipitation in the saliva. The teeth form such splendid nucleus for this precipitation when once formed to be deposited upon, where unfortunately it is often allowed to remain undisturbed.

The composition of salivary calculous is roughly :

Lime Salts.....	80 parts.
Mucous.....	12 “
Ptyalin.....	1 “
Organic Matter.....	7 “

The composition of the calculus varies in different parts of the mouth, as for instance, it is stated that that opposite the parotid contains most carbonate, while that opposite submaxillary most phosphate of lime.

What Circumstances and Conditions Modify the Action of Solvents?

BY F. W. FLEMING.

When a solvent acts upon a body it may either effect a simple solution or may enter into chemical combination with it, or with some constituent of it. In case of simple solution a purely physical action occurs, the dissolved body being unchanged in properties, and no manifestation of heat is observed, as would be the case in chemical action; on the contrary there is a reduction of temperature, such as is always noticed in the merely physical change from the solid to liquid form, or from the liquid to the gaseous. Potassic nitrate and ammoniac chloride dissolved in water form a very efficient refrigerant in the absence of snow or ice. Again the action of the well-known Carre freezing machine is based on this absorption or disappearance of heat as the liquid ammonia gas rapidly passes under diminished pressure, from a liquid into a gaseous state. The machine itself being simply a contrivance which facilitates the conversion of the gas into a liquid under pressure, and the passage back again into a gas under diminished pressure.

A solution may be of varying strength, but usually for any given solvent there are limits. These limits are known as saturated solutions, either cold or hot, *e. g.* 100 c. c. of cold water (roughly speaking) will dissolve 20 grammes of ordinary nitre (potassic nitrate), if the water, however, be at a temperature of 100 degrees C. the 100 c. c. will take up about 140 grammes. Under certain conditions a further quantity may be dissolved, but it cannot be kept in solution by ordinary methods, it is then spoken of as a *supersaturated solution*. For example: boiling water will take into solution more than twice its weight of sodic

sulphate. If this solution be allowed to cool in an open flask an abundant crystallization will take place, for cold water only dissolves about one-third its weight of this salt. If however, the flask be tightly corked whilst the solution is boiling, it may be kept indefinitely without crystalizing. Upon removal of the cork the whole solution is seen to crystalize in a rapid and beautiful manner. This effect is probably due to the decrease in pressure brought about by corking the flask while the solution was boiling. The crystallization of super-saturated solution seems also to be affected by the contact of minute solid bodies (nuclei) derived from the air. This can be demonstrated as follows: Take a solution of sodic sulphate containing two-thirds its weight of the crystallized salt. While the solution is boiling close the flask by a cork, through which pass two short pieces of glass tube. Plug the tubes with cotton wool. After the solution becomes cold, if the cotton plugs are withdrawn, and one blows through either tube, crystallization does not take place. Apparently the air in its passage to the lungs and out again has lost these nuclei, for if air be blown from a bellows crystallization immediately occurs. Perhaps a still more striking proof is obtained by making a solution of alum, saturated at 149 degrees F. and allowing it to cool in a flask, the mouth of which is closed by a plug of cotton wool. It will remain as a clear solution as long as the cotton wool is left in the neck of the flask, and air only reaches it after being filtered by the wool. Once admit unfiltered air and crystallization commencing at a few points immediately underneath the opening of the neck progresses rapidly.

There are a number of curious phenomena connected with the dissolving of metals well worthy of study. One of the most striking is that known as the "passive state." Concentrated sulphuric and nitric acid do not act upon iron at the ordinary temperature, though when diluted they dissolve it readily. If a bar of iron be first immersed in strong nitric acid (sp. gr. 1.45) and then in dilute, the dilute acid will be unable to act upon it, in fact the iron has assumed the "passive state." It can be restored to the normal state, or prevented from assuming the passive state, by wiping it after taking it out of the strong nitric

acid before immersing it in the dilute acid. The dilute acid will then quickly dissolve the iron. This action has been attributed to the formation of a coating of the magnetic oxide, which is sparingly soluble in strong nitric acid.

The chief methods adopted in the laboratory for bringing substances into solution are: pulverization of body, application of heat, and use of menstrums that will either effect the required solution, as alcohol, chloroform, glycerine, etc., or that will enter into chemical combination with the body, as acids, alkalies, etc. If a body be not pulverized there is less surface exposed to the solvent, and in some cases a deposit may be formed which will stop further action. Heat as a rule hastens and cold retards solution. A notable exception to this rule is calcic oxide which is less soluble in boiling water than in cold.

After all, however, the main factor in solution is the menstrum. Comparatively few bodies can be brought into simple solution, they must first be chemically changed. This is markedly true as regards the human organism. Some of our most important food stuffs are insoluble as we partake of them, but by the various secretions are chemically changed into soluble forms. Our nervous system controls these secreting organs, and hence must control solution. Of the nerves going to any given gland, one set governs the amount of transudation of water and salines which shall take place through them, and another controlling the production of these, so that the secreted fluid may be rich or poor in salines under different nervous conditions.

According to Dr. Miller, saliva in contact with amylaceous or saccharine foods, in a few hours gives rise to a strong acid reaction, due to generation of organic acids. Hence there must be in the human mouth a constant, though variable generation of acid, because of the impossibility of keeping the mouth perfectly free from foods, and from solutions of amyloids in saliva, which penetrate cracks, pits, and fissures, or are held by capillary attraction between the surfaces of the teeth in contact and there become acid by fermentation.

The Health of the Dentist.

BY HOWARD VAN ANTWERP, D.D.S., MT. STERLING, KY.

The popular idea seems to be that the practice of dentistry is very much harder on the constitution of those engaged in it than other professions.

A casual glance at the situation will almost always result in the above conclusion. Why is it?

The observer notes on entering the office, first of all, the close, musty, small, peculiar to all ill-ventillated dental and medical offices. Things look dingy and dust lies, a week old perhaps, on all unused articles. He is seated in the chair, which by the way, has much to do with the health of the man working at it. Here he soon finds the source of some of the disagreeable odor, so marked on first entry, viz.: the cuspidor. The operator, wholly regardless of the patient's comfort or his own physique, sprawls himself out and goes to "goughing." The patient, already scared half to death and nearly sick, winches. Result—a more savage attack on the carious center and a more pronounced winch. This goes on from bad to worse until the dentist gets "rattled" and can hardly restrain his excited feelings until the fillings are in, and the muchly used-up patient dismissed. He then retires to "cuss" his fate or the laboratory "cub" or worse still, seeks to soothe his anger with a good (?) cigar.

Is it any wonder that that patient should think it would be trying to be a dentist and undergo similar experiences day in and day out for years. It is not the physical exertion, but it is this mental excitement oft repeated, that wears dentists out. Habit is strong, and before one is aware of it he is called "crabbed and cross" by his patients. A cheerful bearing and a pleasant way of dealing with "bad" patients, go far toward the preservation of the operator's health.

Too great a love for the almighty dollar has much to do with the physical standing of the profession. It leads its victim to working early and late, to the taking of his meals at irregular hours and in a hasty manner, and prevents him from indulging

in any diversion that *might* cause him to loose a dollar or two, but which would, if taken, prove of incalculable benefit to him in the end. A minute's sober reflection will show any of us where-in we are going wrong. Why will we continue doing that which we know to be injurious in its effects.

Dietitically, each must be his own judge. Generally speaking, we all eat too much and take too little time doing it. We do not adapt our diet, either to our individual needs or to reason, common sense should decide the former and nature's plan is a very good one in the latter. Many continue their winter diet of meats, fats, rich milk and butter through the summer, and then wonder why they are so uncomfortable in the hot season. Stimulents and narcotics, mild or strong, are to be unreservedly condemned.

A cheerful office, well ventilated and clean can be secured by all, and will go far toward securing that "tone" that a few can only obtain by expensive office appointments.

Personal cleanliness is a very important factor, not only in the health of the dentist, but also in his material welfare. This costs nothing and the delightful self-satisfaction one feels more than pays for the time expended.

A comparatively easy, upright position at the chair is easily maintained with most modern chairs. There is no sensible reason for stoop-shoulders or lateral spinal curvatures, especially should no position be taken which cramps the abdominal viscera and so interferes with their normal action. Young operators may correct the decided elevation of left shoulder by sleeping with right shoulder the highest. Don't get "down in front" of the patient's nose when working. It is a robust operator, with a phenomenal pair of lungs, that can persist in some of the positions taken in the operating room and come out unscathed in ten years.

The art of leaving your professional self behind when you leave your office is of no mean importance. This can only be acquired by long practice and thorough occupation in some pleasant recreation, bodily or mental, nine months in the year, in almost any State, are suitable for out-door exercises. Out-door

exercise is what the dentist needs, combining as it does, pure air, sunlight for the body and exhilaration for the mind. The need of the first two is plainly seen at a glance. The third, exhilaration, is no less valuable. Many diseases, often called incurable, of the digestive tract depend on some functional derangement. Exercise, to correct these affections must work on the cause. A keen sense of enjoyment in out-door recreation is the most potent tonic at our command. On the other hand, "fatigue" must be carefully avoided. To make "work" of recreation and to carry it to the point of exhaustion, only serves to debilitate and break down. Nothing but harm can come from this over-exertion. What then is the exercise suited to the dentist? Horseback riding is too expensive for ordinary mortals. A good saddle horse is very hard to get and when secured costs the interest on a small fortune to keep. A timid rider rarely becomes a confident one, and without confidence and ease there can be no enjoyment.

Walking is very good but soon grows monotonous. One gets the air but rarely the bodily or mental excitement.

Lawn tennis, in its season, is nearly the thing. Here we have a form of exercise that is not liable to merge into work and combines fresh air and sunlight with social pleasure. Skill in the game can be cultivated indefinitely and the interest in it rarely lessens, especially if the interested party be "single" and has two or three young lady friends who play. Truly it is called a "love" game.

These and many other games and sports will easily find able champions in the ranks of the profession, but above them all we desire to place bicycling, or "wheeling" as it is called by the initiated. This, it seems to us, is the *ne plus ultra* of out-door recreations, combining as it does, in a most perfect degree, all the desirable features of such, and yet almost wholly without any of the drawbacks attendant on other forms.

Generally speaking, there are three classes of wheels in vogue; the high crank machine or "ordinary," the little-wheel-in-front high machine and the safeties. The first class are the swiftest and most graceful appearing, and enable their riders to approach nearest to that "bird flight" so often spoken of in cycling litera-

ture. They are too, the most dangerous, only the most confident riders using them. The second class obviates the greatest danger of the ordinaries, viz.: "header." The Star is the great exponent of this class. The writer rides one, and for all-'round use would exchange it for no other. The machine, practicable for the use of the majority of dentists, is the modern "safety," a creation of the last decade. Originally designed for professional and elderly men, its merits have placed it on a par with other wheels, if, indeed, not above them. This wheel combines nearness to ground with the speed of a high wheel. Positively no danger, unless ridden recklessly. Takes up little room and adds to, rather than detracts from, the appearance of an office. The old and young, ladies as well as gentlemen can and do ride them. "Pap" Ruff, of Richmond, Ky., is 65 years old, rides a safety and is one of the most enthusiastic wheelmen in that State, while Chicago has nearly 1000 lady riders of safeties.

The primary cost is comparatively small, care and repair cost practically nothing; is easily mastered by the timid as is demonstrated by its popularity with the ladies. A tandem—two seated—introduces a social feature not to be lost sight of, lady usually riding the front seat.

Always ready for a five minute run or an all day's tour. With a fifteen minute spin you are carried into the country in almost any direction. There you bowl along at your pleasure, following the windings of some creek or river road. Rounding the basis of hills and projecting points, each succeeding curve furnishes you with new and attractive views from nature's scenery folio. The air is deliciously cool and moist, and possibly fragrant with the perfume of the wild crab-apple or cherry. The man is indeed a poor creature who cannot forget all earthly care at such a time.

Or, perhaps, you prefer to take a high ridge road and fill the remotest air cell in your lungs with that high, dry air, so healthful that one feels almost as though he had taken some wonderful elixir. In his exultation, he wonders how a body, feeling so bouyant and strong, can ever become the prey of disease.

On the return trip you seek out, if you be not too prosey,

some shady, flower-scented lone, and chase the moonbeams as they play through the branches of the arching trees above. Truly this is *genuine* pleasure and only such as can be experienced by the cyclist.

“ Through every fiber of my brain,
Through every nerve, through every vein,
I feel the electric thrill, the touch
Of life, that seems almost too much.”

With joy I mount my silent wheel,
And over hill and valley steal,
Thrilled with the thought that unto me
Is given boundless liberty.

“ I hear the wind among the trees
Playing celestial symphonies;
I see the branches downward bent
Like keys of some great instrument.”

And over me unrolls on high
The splendid scenery of the sky,
Where through a sapphire sea the sun
Sails like a golden galleon.

“ Filled with a sense of keen delight
I ride and ride, until the night
Darkens about me. Home I fly,
Glad I can thus my cares defy.”

There is something in cycling that is satisfying to the soul. It affords free communion with nature and inspires us with a sense of gratitude for Divine goodness, gives healthful exercise to the body, and restful exhilaration to the brain. Does it not meet all the requirements of the case? Is it not the exercise for the conservation of the health of the dentist?

A Temperance Proverb.

A German proverb says: “ Intemperance drives reason out of the head, money from the pocket, the elbows through the sleeves and health from the body.

Evolution of Dentistry.

Embracing Remarks made at the "New York Banquet of Veteran Dentists,"
January 31, 1891.

BY J. A. ROBINSON, D.D.S.

We are now fast approaching a line of a profession, and profession means brotherhood. As dentistry began generally with personal friendships coupled with some mechanical skill and a few tools, and the desire to assist those who were afflicted by the loss of their teeth through accident, neglect or hereditary proclivities; and largely as a matter of sympathy for the suffering, the attempt was made to aid to a more comfortable life; and dentistry was born. In the beginning each individual was isolated and worked alone by himself and for himself, but as the demand grew the thought grew, friendship grew, and concert of action, and education, and science and higher laws presented themselves, that commanded the attention of those most devoted to their calling, and by a law of nature strictly in accordance with evolution; as all the improvements in civilization have come since the primitive man saw a God in every object in nature that he could not comprehend, and so by a law of progress, until to-day we have reached a time when we see one overruling power holding all worlds, so to speak, in the hollow of his hand. And so we see all this individual labor of the past fifty years in our own calling corresponding and forming a common brotherhood, and striving to raise the members to a oneness that shall correspond to our ideas as a Creator, that we may go forward to higher aims and loftier achievements. The three subjects upon which we are not united and on which there is the greatest diversity of opinion, at this time, are artificial crowns, bridgework and pyorrhœ alveolaris. The capping of exposed pulps is assured if done with care by good operators; it is no longer empirical or guess work. These three subjects have been evolved out of the growth of dentistry as a scientific study and pursuit. The fitting of the band is the most important thing in crowns and bridge work,

after removing the enamel at the gum and leveling the root so the band will slide as accurately as the section of the telescope. To get the exact measure for the band take a fine wire thread, three inches long, and loop it in the middle by twisting the two ends together 'till it is almost small enough to go over the end of the root; now take a watchmaker's sliding pin vice and take hold of the twisted end of the wire; slip the loop over the root and pull the wire gently against the posterior side and twist the loop 'till it is tight all around; this can be told, as when it is all tight the wire will kink; take it off and cut the wire opposite the twist and straighten it, and you have the exact measure of the root. The advantage of this way over the pliers generally used, is that the left hand is free to hold the wire in position, and the right hand has constant hold of the wire, and it is always away from the lips, and the back teeth are measured as easily as the front teeth and can be measured across the mouth on one as well as the other.

It will often be a cause of disappointment to any dentist who undertakes to do crown or bridge work with porcelain facings, without the protection of gold to prevent the breaking; to do this, after you have fitted the teeth a little short of articulation, square the ends or cutting edges, back them with thin platinum, bend the pins and do not let the platinum come over the end of the tooth; now take a piece of gold plate, 20 in thickness and large enough to cover the end of the tooth, and put it up to the end of the backing, wax it in place, bed it in plaster and solder as is usually done in backing a tooth; this will make a beautiful finish and serve as protection when you solder for the final finish.

If you have a broken tooth and do not wish to remove the bridge, select a tooth that will not quite reach to the old backing; now take a strip of very thin platinum and wide enough for a baking and leave the ends long crosswise and flow gold over one side and back, and solder to the pins; now square the old backing that is on the bridge, put the tooth in place and bring the long ends together round the old backing, now remove the tooth and fill the slot with yellow ochre to keep the solder out, and solder the bands together; this will leave a pocket to receive the

old backing that is on the bridge and fasten it in place with amalgam. The object of flowing gold over the platinum is so the amalgam will unite with it, as it will not unite with platinum. When a root is very short take a fine hairpin and bend it in form of a button hook, barb the long end and cement it in the root before cementing on the crown, or if the root is sufficiently strong make a staple and anchor into the canal, and your crown will never come off. A hairpin is best because it is covered with a varnish that prevents rusting with the cement.

If a crown is to be attached where the pulp is not exposed, cut two very fine horizontal grooves around the root to hold the cement, as it always leaves the tooth before it will come out of the band. What are known as Richmond crowns are par excellence for artificial substitutes, removable bridge work is next; and the permanent bridge is safe practice where we have an anchor at both ends of the bridge.

I have experimented with the newly patented plan of Dr. N. I. Goodwin, of Hartford, Conn. I have experimented with it some years ago with every prospect of success, but they were entire failures.

In pyorrhœ I know of nothing that will compare with carbolized potash known as Robinson's Remedy to effect a permanent cure, and it is the best thing I have ever used as an obtundent for sensitive dentine. I introduce two letters, from patients* who had the worst cases I have ever seen, that will speak for themselves. After applying the remedy according to directions, I pack the gums with carbonate of lime which is an antacid, absorbent and astringent, and press the gums close around the teeth to keep out all secretions, and if you have been thorough enough with your chisel to remove all calcarious deposit and produce a new wound at the alveolus, it will heal by first intention, if the secretions and air are kept out, for all life and cure comes from within. I have cured a number of molars where the absorptions

* The letters here referred to give evidence that the treatment of the teeth of the writers was entirely successful, in restoring the teeth to firmness and usefulness.—ED.

had been so great that I could pass a small instrument between the bifercated roots, but I could not restore the gums. The teeth remained quite firm without any artificial support. In treating such cases I tie a piece of floss silk to the cotton rope, saturated with the remedy, to fish it out when the medicine has done its work. I also give a box of carbonate of lime for the patient to pack the teeth and gums every night before going to bed, as the gums are more liable to infection while in repose than during the day; also insist on thorough brushing at night before packing the gums, as bacteria are more liable to find a lodgment during sleep. Wounds of the soft tissue must be kept air tight to heal by first intention, as the process of granulation is very slow if disturbed by mastication. We must follow nature's process of cure, if we expect to achieve success. When the earth was undergoing gestation, in the fullness of time, trees and plants came forth to fit it for the abode of man, then man was born. The primitive man has been making mistakes and blundering for centuries and his modes of living have brought destruction to his teeth, and at last man resorted to mechanical contrivances for self-preservation and relief. As the necessities grew upon the race, new methods of investigation rose with the occasions, chemical affinities were discovered and when the sympathetic character became coupled with the opportunity a series of efforts grew into the occasion, to give life and permanence to a new profession; then dentistry as a profession was born. Those who have been working for half a century or more can recollect when the germs of what is now a noble profession sprang into being. When we began to work, our failures and our difficulties suggested new methods and modes of practice; then by transformation and transmutation, and genius, and diligence, and industry we advanced step by step, gaining only a little the first twenty-five years. Then came the rubber dam, the dental engine, the cements, the improved disks, the mallet, and painless extraction of the teeth and cohesive foil seemed almost born in a single year. Colleges were endowed and we were enrolled among the learned professions. Civilization and the arts, science and morals are twin brothers of the same great family. "All are but parts of

one stupendous whole, whose body nature is and God the soul." It is the same with mechanics and professions. Man is never quite satisfied when his physical wants are all supplied he is striving for something more; we want something higher and better, and all his wants are born out of a previous condition. It is like the birth of water. When hydrogen and oxygen are brought together then water is born, and the new birth brings plants, leaves and flowers to correspond to the surroundings that it took ages of the earth's rotation and gestation to produce. The sliding scale may consume ages but the leaves, the plants and flowers are a new creation. So it required a higher culture and civilization to bring forward our beautiful profession. The recent discussion about contour and face fillings is easily disposed of; when the axis of the tooth corresponds with the axis of the occluding tooth or teeth it will never tip forward or backward, and it is the same with artificial dentures.

And now at the close of this Nineteenth Century we behold a profession born within the century, and within the memory of these few witnesses who have left their homes to be guests of their professional brothers of the State of New York; we urge you as the fathers of the profession to hand it down to the present generation with all the growth and improvements to the younger members in true professional character, to grow higher and broader to the end of time.

CHLOROFORM IN CONVULSIONS.—Inhalations of chloroform are invaluable in arresting convulsions in children of two years or under. Give them a whiff of it while in the convulsion. The paroxysm having been broken, the following should be given to prevent recurrence:

R. Sodii. bromidi.....j drachm.
 Chloral hydrat..... $\frac{1}{2}$ ounce.
 Aq. menthæ pip.....
 Syr. tolutani a a.....jv fluid drachms.

Misce. Signa. One-half teaspoonful every half hour until child is quieted down.—*Times and Register.*

SELECTIONS.

The Study of Comparative Anatomy, and its Value to Dentists.*

BY A. H. THOMPSON, D.D.S., TOPEKA, KAN.

It is universally conceded by students in all branches of learning, that the comparative method in any study is the only scientific method. It is not enough that one branch be studied alone and exclusively, be that study and investigation ever so minute and thorough; for although thoroughness and minuteness will make depth of learning, it is not enough. There must be breadth of knowledge as well as depth, and to insure breadth, a given branch must be compared with collateral branches. Exclusive attention to one thing will make a deep student, but a narrow mind. It requires frequent excursions into other fields to gather material for the illumination of one's special branch, to make the broad and cultured mind. Specialists and special branches are necessary, of course, and exclusive devotion of the mind to one field is required to bring out all that can be known on even one branch—for human time and strength are limited and one mind can not grasp all knowledge; but that devotion does not exclude everything else, but rather includes a knowledge of those collateral branches which serve to illuminate the special field, for its better understanding.

Especially is this true in regard to the study of man since he has come to be scientifically studied as an animal, in his relations to the rest of the animal kingdom. Before this era, when man abrogated himself a sort of divine superiority over the rest of nature, he would not submit his royal person to comparison with those of other animals. Now, however, as Dr. Holmes has it, "man is studied as the rocks and stars," and the scalpel, the test-tube and the microscope are applied to him as to other objects in nature, which are to be studied and investigated.

* Read before the Minnesota State Dental Association, July 10, 1890.

Therefore the comparative method in the study of man is now recognized as the only scientific method, and is the only one generally pursued. Not only are his anatomy and physiology illuminated and better understood by comparison with that of other animals, but even his psychology is now being subjected to this method. The old system of psychology, like the old system of biology, will probably go to the wall, and many idols will fall before the irreverent sweep of the comparative method; but it will bring us nearer a correct understanding of the mind and its faculties.

Prof. Joseph Le Conte ("Evolution and Religious Thoughts") says: "There are two widely distinct views concerning the relation of man to nature; the one as old as the history of human thought, the other only now urged upon us by modern science. According to the one, man is the counterpart and equivalent of nature; he alone has, in fact is, an immortal spirit, and therefore belongs to a world of his own. According to the other, man is but a part, a very insignificant part, of nature, and connected in the closest way with all other parts, especially with the animal kingdom. He has no world of his own, or even kingdom of his own, he belongs to the animal kingdom. In that kingdom he has no department of his own, he is a vertebrate. In the department of vertebrates he has no privileged class of his own; he is a mammal. In the class of mammals he has no titled order of his own; he is a primate, and shares his primacy with the apes. It is doubtful if he may enjoy the privacy of a family of his own—the Homide—for the structural differences between him and the anthropoid apes are probably not so great as between, for instance, the sheep family and the deer family.

"Now, it is evident that these two standpoints are only views from different points, the psychical and structural. From the psychical point of view it is simply impossible to aggregate the vastness of the gap that separates man from even the highest mammals. From the structural point of view, on the contrary, it is impossible to exaggerate the closeness of the connection. Man's body is identified with all nature in its chemical constituents, with the bodies of all animals in its functions, with all ver-

tebrates, especially mammals, in its structure. Bone for bone, muscle for muscle, ganglion for ganglion, almost nerve-fiber for nerve fiber, his body corresponds with that of the higher mammals. Whether he is derived from lower animals or not, certain it is that his structure, even in its minutest details, is precisely such as it would be if he were thus derived by successive slight modifications.

“Now of these two views the latter has been in recent times earnestly productive in increasing our knowledge. Anatomy has become truly scientific only through comparative anatomy; physiology through comparative physiology; embryology through comparative embryology. Sociology is fast following in the same line, and becoming scientific through comparative sociology. Is not the same true also of psychology? Will not psychology become truly scientific only through comparative psychology, *i. e.*, by the study of the mind of man in relation to the mental life of lower animal?”

But it is to the study of comparative anatomy especially, and its methods, that we wish now to direct attention. This study is attractive and fascinating to those to whom, like specialists in other fields, it elects to open its doors. It is not necessary to defend its beauties now, but rather to point out its value and utility in the study of man, and especially regarding the illumination it bestows upon our knowledge of the jaws and teeth. In this field it has not been utilized as it should be and the especial plea of this paper is for the comparative study of the teeth in our colleges, and that it may receive more attention than it has heretofore. The study will clear up many obscure points in the forms and structure of the teeth of man, and give the student a far better understanding of the principles which govern their evolution and organization. It will, in fact, make odontology scientific.

And first as regards the great principles. The leading principles of comparative study are, the Analogy and Homology of parts and organs. As Prof. Le Conte says (*op. cit.*): “In biology those organs or parts in different animals are said to be analogous which, however different their origin, have a general similarity of form and especially of function; while those are

called homologous which, however different their general appearance and however different their function, yet may be shown to be modifications of originally the same part, but altered for different purposes. The analogous parts when compared look and behave as if they were the same, yet are not; and the homologous parts look and behave very differently but are, in fact, the same part in disguise. For example, the wing of a bird and the wing of a butterfly are analogous organs and have the same functions—flying. But they are not homologous, for they are not the same organ or part and have certainly never been formed out of the same original organ by modification. But the wing of a bird, the forepaw of a reptile or mammal, the wing of a bat, the arm and hand of man, though so different in form and function, are homologous parts. On close examination they are found to have the same general structure, to be composed essentially the same pieces, although so greatly modified in order to adapt them to different function that the general resemblance is lost. They are homologous but not analogous parts. Their structure is precisely such as it would be if they had all originated from some archetype fore limb by modifications for different purposes. Again, the lungs of a mammal and the gills of a fish are analogous organs, since they have the same function of aeration of the blood. But they are not homologous, they are not built with the same plan, nor could one be derived from the other. But there is an organ in the fish which is homologous with the mammalian lung—the air bladder—which is used by fishes only for flotation. This organ is the beginning of lungs, which by gradual steps is developed into the lungs of the higher air breathing animals.” These examples might be multiplied to the extent of all the organs and tissues of the body, but we see clearly that “analogy has reference to general resemblance of form determined by similarity of function, however different the origin of the parts may be. Homology has reference to community of origin, however obscure the path of evolution may be and however diverse may be the organs and their functions now. Common origin completely explains homology by comparison, and by the study of embryology and the comparative method is therefore the scientific method.”

It is by homology of structure, not by superficial appearances, that the whole animal kingdom is divided and classified. All animals are grouped in relation to their plan of structure. There are first the two great divisions of the animal kingdom into vertebrates and invertebrates. The first has a backbone or vertebral column, the other has no backbone, but most of them have the body divided into segments or joints. The general structure in each class is governed and the organs are arranged according to the primary plan. These sub-kingdoms are then divided and sub-divided until division can be carried no further when it reaches species; each division depending on peculiarities of structure and classification depending upon homologies.

Restricting ourselves to the vertebrates, there is to be noticed as a special example of homology, that of the limbs. Compare the fore limb of man with that of the cat, dog, sheep, horse, bat, bird, turtle, frog, mole, whale or fish—and what a variety of function is represented, but throughout the series there is homology of the whole and harmony of structure, for there is a similar origin of each one and similar embryology and development. The law of differentiation comes in, in the development and specialization of forms, by which the law of adaptation of structure, while the general plan remained the same. This law of differentiation is the fundamental law of evolution. It first causes the divergencies that take place in the process of the evolution of the cells forming the embryo, by which the typical destiny of the individual is indicated. The cells diverge again to form different tissues, and those to form different organs, to perform different functions. So in the formation of the limbs, the different cast was given to each one as the ruling type indicated, at a certain stage in the development of the individual, and the law operates also in regard to the evolution of all other limbs and organs.

The development of the mammalian head is of special interest to us as dentists, and more particularly the face, jaws and teeth, the brain case has been modified wonderfully, from the lowest to the highest vertebrates, to accommodate the growing brain, until in man it towers over the face, and the jaws become reduced to a more or less rudimentary condition as compared with other ani-

mals. The face has some curious analogues in the animal series, especially when comparing its structure as evolved for the accommodation of the sense organs with the sense organs of other forms. For instance, in the vertebrates the sense organs have a definite position in the head and a definite relation to the brain, so that in the mammalia the face and sense organs are analogous and homologous. As compared with lower forms, however, it is a mooted question as to what the jaws really are and what are their homologies? It is known that the jaws are developed from the two upper segments or rings of gill-clefts of fishes and amphibians, but it is not settled whether they are homologous with the limbs or not. They are appendicular structures like the limbs and are, like them, suspended from the vertebral skeleton, but are probably not homologous. It is well known from the developing embryo where the upper pairs of gill-clefts unite to form the upper and lower jaws, but their homology is obscure.

Throughout the vertebral series, from the fishes and amphibians up through the reptiles, birds and mammals to man, the jaws are homologous and analogous and from origin to function pursue strict relationship and resemblance. They vary somewhat as regards the extra functions performed by them in different animals, but the main purpose is preserved in all. In the herbivorous mammals, for instance, there is extensive masticating area and a loose moveable jaw to allow of free movement of the lower jaw, or mandible, in every direction, for the minute comminution of coarse vegetable food. In the carnivora there is simple vertical movement for the seizing and cutting of flesh, but without lateral movement of the jaws, as the flesh food does not require mastication. In the rodents there is extensive vertical movement to allow of cutting with the strong incisors, and considerable lateral motion to permit of mastication. In the more omnivorous forms there is a combination of these movements without the extremes, and in all forms there is an adaption of means to ends. The study of the mechanism of the jaws in lower forms, their origin, development and function, comparing them step by step with those of man, would throw much light on many questions. For instance, much interesting information regarding

the elucidation of the vexing problem of the causes of irregularities of the teeth, could be acquired by the extensive study of the jaws in lower forms and even in the lower races of man, as compared with the higher races. Many resemblances could be worked out which would account for erratic forms of the jaws in man, which we now consider to be abnormal freaks, might only be reversals to former type.

In the field of the study of the teeth, odontography, in relation to and in comparison with those of lower animals, there is a mass of interesting material to be gathered. Every one knows that the teeth in man are more or less rudimentary as compared with other forms, and it is only by comparison with those forms that a proper understanding of them can be attained. The developmental history of a tooth is as interesting as that of a species. The light that is thrown upon our special field by such investigation, is very great, and if we would pursue it would help us to understand many things which are now regarded with childish wonder as mere curiosities or abnormalities, but which are really subject to simple laws, if we would but study and understand them. We are far behind the science of the age in our methods of studying the teeth, and in the quantity and quality of the knowledge of the subject which we know and teach. The mass of the profession know little of the comparative anatomy or its value in our field; and so far as the young men are concerned, the fault lies with the instructors and the system in the colleges. Accounts often appear in the journals of anomalies in the possession of correspondents, which are described as being very wonderful and unique, but which the student of comparative anatomy knows are merely reversals. For instance, a three-rooted, upper bicuspid is a reversal to the anthropoid type, as the apes have that form, their premolars being implanted with three roots. Or again, an additional incisor, a double, it may be, is reported, which is also a reversal (the original number of incisors, being six, two having been suppressed), or one or both laterals may be suppressed entirely, and for several generations in a family. This the student knows is because the lateral incisor is becoming erratic, like the wisdom tooth, in less degree, and like it, is starting

on the road to disappearance. The wisdom-tooth is quite often absent in civilized man, because, as is well known, it is on the high road to total suppression in the species, although it is as good and as well set in the lower races of man and the higher apes, as the other molars.

This suggests the subject of additional or extra teeth in the human series, "supernumerary teeth," as they are called. These are usually considered to be freaks and accidents; but the evolutionist knows that they are produced by the workings of the law of atavism, *i. e.*, the reappearance of organs or parts that have, in the course of development, been aborted. Man has lost twelve teeth, *i. e.*, the difference between thirty-two and forty-four, the normal, typical mammalian number, and supernumerary teeth are the representatives of the number that have been suppressed. Nature, in response to some unknown impulse, makes a spasmodic effort, a spurt of hereditary energy, and reproduces the original dental germs. Additional molars, bicuspid, or incisors, which were the last teeth to disappear from the species, are usually the teeth to reappear. They are, of course, mostly deformed and rudimentary, as the effort to produce teeth of full form is too much for the failing powers. Occasionally a fully formed supernumerary tooth is produced, but the instances are rare.

There are occasional resemblances to lower forms which crop out in individual teeth that are highly interesting, and but for the light thrown upon these eccentricities by comparative study, would be considered as mere anomalies and freaks. For instance, the tri-cuspid upper molar, as sometimes seen, especially in the Latin races of man in Europe, is a distinctly Lemurine character, as pointed out by Prof. E. D. Cope some time since. The special connection between the Lemurs and these races is only collateral, of course, and is as unknown as the paleontological history of man itself. But the knowledge of the Lemurine dental characteristics points out that the peculiarity is a reversion, according to the law of atavism, and that a scientific reason can be given to account for it. Or again, the wrinkled face of the lower wisdom tooth which appears in some persons, is a reappearance of the orang type, which has such molars. Or this tooth may

be tri-cuspid as in the Macaiques. Again the vertical grooves on the face, and the notches on the edges of the incisors, which are so conspicuous in childhood when the incisors are first erupted, are rudiments of a permanent condition in some lower animals. The Galeopithecus monkey has the lower incisors divided into teeth like a comb, and many of the carnivora have the teeth deeply notched. In man the grooves and notches, which soon wear away, are suggestions indicating collateral inheritance, which in other forms is carried further and becomes permanent. Again, the canines are much reduced in size in man but still retain the backward curve that recalls the saber shape so conspicuous in the long trenchant canines of the carnivorous animals, and more or less so in the quadrumana. There is also a large diastema found in the apes and most monkeys, and before them in the carnivora, in front of the upper canine, between it and the lateral incisor, which the long lower canine enters when the lower jaw is closed. This diastema is sometimes found in the lower races of man, and very rarely there is a space between the upper canine and lateral incisor in civilized man, in well formed jaws (when it is not due to disease), which must be considered a survival. Again, the cusps of the grinding teeth of the insectivora are usually long and sharp for the crushing of the chitinous armour of insects. This peculiarity sometimes reappears in the extra long molar cusps of man; especially of the postero-lingual cusp of the upper molars, which is often troublesome in articulating. The reappearance of extra cusps and cingulums on the human molars might, perhaps, be traced to the same source, as the molars of the Insectivora. Tomes says, "fairly bristle with cusps." Again, the New World monkeys have 36 teeth in very nearly all species, while the Old World quadrumana nearly all have the human formula, thirty-two, man being descended as a collateral branch with them. The higher apes have the human formula exactly, and also have the oblique ridge so characteristic of the human upper molars. This ridge is not found in the lower quadrumana, and seems to have been a later appearance.

Many other features in the teeth of man and their environments have been noticed which are explained by comparison with

lower forms, and many more can be explained by further study and comparison. In fact, nearly all forms and features of the teeth, as of other organs, being inherited, come from previous forms and indicate relationship with them. And thus in our own branch we insist that the value of comparative anatomy cannot be over-estimated. It should be given a more prominent place in the curricula of our colleges, and in our text books, that the practitioner may gain a more scientific foundation for the principals that underlie practice. In this age of the world knowledge is of no value whatever if it is not exact to the very minutæ. In former times general knowledge was quite sufficient for the purposes of life, even if it was not very exact as to details; but in our day such general knowledge is not sufficient. Sometimes stupendous consequences depend upon the mastery of a minute detail. No fact is so insignificant as to be valueless, therefore it is worth all the labor that can be bestowed upon it to make it exact. In modern science much depends, we might say everything depends, upon exact knowledge of often apparently insignificant facts; but these, when marshalled in numbers-give birth to great principles which revolutionize thought and affect the destinies of men.

Dr. Koch.

Dr. Koch is 47 years old. After graduating at the University of Gottingen, he commenced practice in a little village near Hanover, but failed to make a living. He then tried Rackwitz, a small malarious town in Prussian Poland, with no better results. Finally he settled in Wollstein, and in 1880 he attracted much attention by his analyses and medical testimony in the famous Speichert poisoning case. In 1882 he discovered the bacillus of tuberculosis, and in 1883 the germ of cholera while acting as the head of the medical commission sent by the German Government to Egypt and India to study the causes and prevention of cholera. On his return to Germany he received an honorarium of 100,000 marks, the rank of Privy Councillor, and the Rectorship of the Imperial Institute of Hygiene.

The Composition of Koch's Lymph.

Professor Koch has made a third report of his work under date of January 15. His reasons there given for withholding from the public to the present time the exact composition of the fluid used in the treatment of tuberculosis, should be satisfactory to the medical profession. The modest manner in which he now refers to his previous labors, and the methods employed by which he has reached his present conclusions commands approval, and the unreserved manner in which he now gives to the public the results of his labors must surely disarm those who were disposed to criticise the withholding of his discovery from an exacting and impatient multitude.

“The remedy,” says Professor Koch, “which is used in the new treatment consists of a glycerine extract derived from the pure cultivation of tubercle bacilli.”

This extract contains not only the effective substance derived from the bacilli, but such other substances, consisting of salts, coloring material, and extractive matters as would be soluble in a fifty per cent. solution of glycerine. Their elimination is of no practical importance since they exert no essential influence upon the human organism. Combined with other extractive material the effective matter is precipitated by alcohol, in which it is insoluble, and can be isolated from other substances in a comparatively pure and concentrated form and with increased potency.

Regarding the composition of the effective substance, as he terms it, Professor Koch says that for the present only surmises can be entertained. He believes it to be derivative from albuminous bodies, and having close affinity to them. That it does not belong to the group of tox-albumens he argues from the fact of its tolerance of high temperature and of its behavior in the dialyser. So far as can be estimated the percentage of the active principle in this solution is exceedingly small, being rated at a fraction of one per cent. It is evident that we here have to do with a remedy which, considering the effects which it produces, is far more potent than any drug hitherto employed.

Various views are entertained as to the manner in which the substance produces its effects.

It is known that tubercular bacilli, when growing in living tissues, produce substances which affect unfavorably, and in concentrated form, produce necrosis of living tissue. In this necrotic tissue the bacillus fails to obtain its needed nourishment, ceases its development and sometimes dies.

Thus the very environment of the bacillus is inimical to its development and multiplication. If now a substance be introduced that can develop the necrotic environment still further, and limit the possibilities of its growth, by so much the more will its limitation and destruction be assured.

It may be as yet impossible to explain the manner in which this remedy exerts its specific influence upon tuberculous tissue. Nor can we yet understand the remarkable rapidity with which its effects are produced. Nor does time yet suffice to determine as to the permanency of alleged favorable results. Instances are cited where the tubercular bacilli disappeared from the sputa of patients while under treatment, and at the end of three months had not reappeared, the patients in the mean time improving in health, the physical signs of phthisis having disappeared.

HOT WATER FOR SLEEPLESSNESS.—A most wretched liar-awake of thirty-five years' standing, who for ten years has thought himself happy if he could get twenty minutes' sleep in twenty-four hours, said: "I took hot water—a pint, comfortably hot, one good hour before each of my three meals, and one the last thing at night—naturally, unmixed with anything else. The very first night I slept for three hours on end, turned round and slept again till morning. I have faithfully and regularly continued the hot water, and have never had one bad night since. Pain gradually lessened and went; the shattered nerves became calm and strong, and instead of each night being one long misery spent in wearying for the morning, they are all too short for the sweet, refreshing sleep I now enjoy."—*London Spectator*.

The New Hypnotic—Somnal.

The ideal hypnotic has not yet been discovered. Chloral hydrate is a great favorite, especially among our asylum superintendents, but it has its manifest drawbacks in private practice. Chloralurethane and chloralamide are competitors for therapeutical favor, along with somnal, all of them depending largely on chloral for their efficiency. This suggests that we may, before long, get some composition on that base of chloral which will be more prompt and manageable than any we now have. Sulphonal has lost some of its hold, by reason of its irregularity, by putting the patient to sleep twelve hours or more after the time when the somnolence was sought, or prolonging it beyond the point desired; its potency in a certain range of cases should not be denied, but taken as a whole the drug has been a disappointment to many. The latest hypnotic, somnal, to receive attention, is preferred by Dr. Kny, the eminent specialist of Strassburg, chiefly on the ground that it has very little influence over the heart's action. The short time, a half-hour or less in many cases, wherein sleep is induced makes somnal much more preferable to sulphonal, which seldom acts under one or two hours, or it may begin to act when the practitioner is about to administer a second dose. The inventor of somnal, Herr Radlauer, of Berlin, has been able to prove that it is a distinct chemical compound, having the formula $C_7H_{12}Cl_3O_3N$. It is obtained from chloral, alcohol, and urethane, and comes as a clear fluid. It differs from chloralurethane in that it contains two atoms more of carbon and four atoms of hydrogen. Radlauer advises that the initial dose shall be 2 grammes, or $\frac{1}{2}$ drachm, mixed either with syrup of raspberry or juice of licorice. The somnolence lasts seven, eight, and even as long as ten hours. Doses of twice the size above mentioned have been given by Prof. Langenbuch, of the Lazarus Hospital at Berlin, without noticing any toxic effects, while the hypnotic result in many cases has been excellent. The quality of sleep is said not to be profound, so that the surroundings should be made as little disturbing as possible.—*Journal of the American Medical Association.*

The Products of Pathogenic Bacteria.

During the past two years great progress has been made in the study of the action of pathogenic bacteria. This work has chiefly been carried on by Koch and Pasteur on the continent, and Drs. Sidney Martin and Hankin in England. In the *Revue de Medecine*, 1890, No. 7, Dr. Charles Bouchard publishes an article on the properties of the substances secreted by pathogenic micro-organisms. It contains the chief part of his address before the Tenth International Congress on the "Mechanism of Infection and Immunity." After an exhaustive summary of all that is known concerning the action of products of metabolism with which we are acquainted, Bouchard relates a series of thirty-one experiments which he made, partly in order to investigate the power which blood-serum possesses of destroying bacteria, and partly to ascertain how far their products confer an immunity against similar or other bacteria. Many experiments demonstrated the influence of the same products on phagocytosis. The space here is too limited to enter into the details of this interesting paper, but the general results of Bouchard's investigations are as follows: Among the substances secreted by the microbes are some which have an inhibitory action on them—that is to say, these products tend to retard the development, increase and characteristic action of the micro-organisms; other substances are favorable to their growth. These, however, only act indirectly by modifying the material upon which they grow (peptones, etc.). Such products may be favorable or unfavorable for other microbes. Some organisms produce poisonous substances upon which depends their virulence. Amongst pathogenic microbes are some which secrete substances that confer upon animals inoculated with them an immunity against these particular germs; this they do, not by their presence only, but by modifying the animal organism so that it forms a less favorable pabulum for the development and growth of the bacteria, and causes the leucocytes to perform the process of diapedesis more rapidly, and to assume their functions as phagocytes more energetically. If an animal be inoculated with these substances

together with a pure culture of the same bacilli from which they were obtained, the disease runs a more rapid course whilst its development will be delayed or prevented if the animal be inoculated a few days before the injection is made. If bacteria which acts antagonistically towards one another be cultivated together in a test-tube, the soluble products of the "stronger" can be made to retard the development of the "weaker" organism. So that if an animal be inoculated with the products of metathesis of the "stronger" at the same time as the active principle of the "weaker," the action of the latter will be delayed and weakened. Some microbes appear to assist the action of others; these Bouchard terms "auxiliary microbes." By this means an animal may be infected with a disease which it would otherwise resist.—*Lancet*.

Deafness for High Notes.

Mr. Edwin Cowles, editor of the *Cleveland Leader*, who died last March, had a peculiar form of deafness. He never heard the sound of a bird's note, and until he grew to manhood he always thought the music of the bird was a poetical fiction. "You may fill the room with canary birds," he once said, "and they may all sing at once, and I would never hear a note, but I would hear the fluttering of their wings. I never heard the hissing sound in the human voice; consequently, not knowing of the existence of that sound, I grew up to manhood without ever making it in my speech. A portion of the consonants I never hear, yet I can hear all the vowels. About a quarter of the sounds in the human voice I never hear, and I have to watch the motion of the lips and be governed by the sense of the remarks in order to understand what is said to me. I have walked by the side of a policeman going home at night and seen him blow his whistle and I never could hear it, although it could be heard by others half a mile away. I never heard the upper notes of the piano, violin, or other musical instruments, although I would hear all the lower notes."—*Cleveland Med. Gaz.*

The Curve of Health.

Oliver Wendell Holmes says in the *Atlantic Monthly*: Let me tell you one thing. I think if patients and physicians were in the habit of recognizing the fact that I am going to mention both would be gainers. The law I refer to must be familiar to all observing physicians, and to all intelligent persons who have observed their own bodily and mental conditions. This is, the curve of health. It is a mistake to suppose that the normal state of health is represented by a straight horizontal line. Independently of the well-known causes which raise or depress the standard of vitality, there seems to be—I think I may venture to say there is—a rhythmic undulation in the flow of the vital force. The “dynamo” which furnishes the working powers of consciousness and action has its annual, its monthly, its diurnal waves, even its momentary ripples, in the current it furnishes. There are greater and lesser curves in the movement of every day’s life—a series of ascending and descending movements, a periodicity depending on the very nature of the force at work in living organism. Thus we have our good seasons and our bad seasons, our good days and our bad days, climbing and descending in long or short undulations, which I have called the curve of health. From this fact springs a great proportion of the errors of medical practice. On it are based the delusions of the various shadowy systems which impose themselves on the ignorant and half-learned public, as branches or “schools” of science. A remedy taken at the time of the ascent in the curve of health is found successful. The same remedy taken while the curve is in its downward movement proves a failure. So long as this biological law exists, so long the charlatan will keep his hold on the ignorant public. So long as it exists the wisest practitioner will be liable to deceive himself about the effect of what he calls, and loves to think are, his remedies. Long-continued and sagacious observation will, to some extent, undeceive him; but were it not for the happy illusion that his useless or even deleterious drugs were doing good service, many a practitioner would give up his calling for one in which he could be more certain that he was really doing good to the subjects of his professional dealings.

Treatment of Obesity.

In an article on the "Physiological Treatment of Obesity" in the *N. Y. Medical Record*, February 15th, 1890, Dr. Walter Mendelson gives the following diet list made up as an average of two, by Oertel, and somewhat modified for American habits. Such a list is only to serve as a *general guide* to the patient to whom it is to be given. No absolutely hard-and-fast rules can be laid down, and patients under treatment should be seen—and weighed—from time to time; increasing one kind of food and diminishing another as occasion demands.

Breakfast: 1 cup (6 ounces) tea or coffee, with milk and sugar; Bread, $2\frac{1}{2}$ ounces (2 or 3 slices); butter, $\frac{1}{2}$ ounce; 1 egg or $1\frac{1}{2}$ ounces meat.

Dinner: Meat or fish, 7 ounces; green vegetables, 2 ounces (spinach, cabbage, string beans, asparagus, tomatoes, beet tops, etc.); farinaceous dishes, $3\frac{1}{2}$ ounces (potatoes, rice, hominy, macaroni, etc.), or these may be omitted and a corresponding amount of green vegetables substituted; salad, with plain dressing, 1 ounce; fruit, $3\frac{1}{2}$ ounces; water, sparingly.

Supper or Lunch: 2 eggs, or lean meat 5 ounces; salad (radishes, pickles, etc.), $\frac{3}{4}$ ounce; bread, $\frac{3}{4}$ ounce (1 slice); fruit, $3\frac{1}{2}$ ounces, or fruit may be omitted and bread, 2 ounces, substituted; fluids (tea, coffee, etc.), 8 ounces. No beer, ale, cider, champagne, sweet wines, and spirits. Claret and hock in great moderation. Milk, except as an addition to tea or coffee, only occasionally. Eat no rich gravies, and nothing fried. Patients should always feel *better*—never worse—under treatment. Lassitude and fatigue are signs that the muscular tissue, as well as the fat, is being reduced, and that more non-nitrogenous food must then be allowed.

Dr. Mendelson says: Never yield to the wishes of the patient to grow thin *quickly*. All reforms, to be lasting and beneficial, must be slow in action; they must be the result of education; they must be a growth from within, not an impress from without. And the cells of the body, in the infinite diversity of occupation resembling the citizens of a state, can by slow degrees be habitu-

ated to better things, to change their vicious mode of action to one harmonious with the welfare of the commonwealth. And when this education has once been established, continuance becomes a mere habit.—*Annals of Hygiene*.

The Value of Time.

A correspondent, writing from a large commercial city, informs us that he remembers seeing many years ago, the following in some mercantile offices: "Call upon a business man at business time only, and on business. Transact your business and go about your business, in order to give him time to finish his business." Our correspondent feelingly asks whether a notice similar to the above, with the necessary modifications, might not be hung up in the consulting room and surgery of every busy consultant or general practitioner. Much has been said as to the rapidity with which the out-patients of hospitals are disposed of. But this rapidity is perfectly compatible with correctness of diagnosis, prognosis, and prescribing by an experienced practitioner, and there is something to be said on the other side—the time wasted by patients in prolix descriptions and tedious repetitions. The quaint story of the lady who consulted Abernethy and, knowing his impatience of such verbosity, held out her wounded finger and answered in monosyllables, is well known and the example might be followed with great advantage. The lady in question was rewarded by Abernethy's impromptu praise, that she was the most rational woman he had ever met in his life. Those patients who are most considerate for their doctor's time are certainly the most welcome.—*Lancet*.

FOR SOLDERING ALUMINUM.—

Gold.....	30 parts.	or,	Gold.....	50 parts.
Silver.....	20 "		Silver.....	10 "
Platina.....	1 "		Copper.....	10 "
Aluminum.....	100 "		Aluminum.....	20 "

(Schlosser)

Therapeutic Application of Nitrous Oxide.

Neuralgia, uncomplicated, will sometimes be relieved by a few inhalations of nitrous oxide gas.

Nervous Aphonia. This peculiar form of loss of the power over the voice, usually the result of hysteria, will be much improved by the patient inhaling a sufficient amount of the nitrous oxide gas to produce a partial loss of sensation and muscular relaxation.

Local Paralysis has been benefitted, when there was no brain lesion, by the gentle stimulation by the first stages of the gas or the tingling and stimulating effect on the muscles.

Asthma.—This disease, when of a spasmodic character, is often much improved by causing the patient to pass into the stage of relaxation, employing it every other day for a week or two.

Epilepsy.—When this disease is not the result of an organic change in the brain, spine, or other portion of the nervous system, but the result of some peripheral, or reflex action, benefit will ensue by the use of the gas for weeks. It should be administered two or three times a week only, to produce the stimulating effects of the first stage of anæsthesia.

My friend, Dr. George J. Zigler, has found the solution of the gas in water of much utility in diseases of the lungs, kidneys, and other diseases of this class.

In connection with the above we add a part of a discussion of a paper by Dr. John Aulde, M.D., Philadelphia, on Instruments and Appliances for Administering Oxygen. In the discussion of the paper Dr. M. Price said :

“I would like to ask to what the benefit from the use of nitrous oxide is attributed? Fifteen years ago we used nitrous oxide at the dispensary for the extraction of teeth. Many consumptive cases in which it was used came back in a few weeks stating that they had never been so much benefitted as from the inhalation of nitrous oxide. My explanation is that the nitrous oxide, acting as an anæsthetic, lessens the pain of respiration, and the patient in his efforts to secure air expands the lungs

filling portions of them that have not been used. The action is just the same as when we break up the adhesions about an ankylosed joint under ether. I have employed the nitrous oxide in many cases of phthisis with advantage, and dentists have informed me that they have often been told by consumptive patients that they have been benefitted by the inhalation of nitrous oxide."—*Turnbull's Anaesthetic Manual.*

THE OVERWORKED PHYSICIAN'S LUNCHEON.—Dr. Allen McLean Hamilton contributes to the *Dietetic Gazette* some dietetic suggestions in nervous and mental diseases, one of which will interest all those busy practitioners who give themselves no time for a midday repast. His advice would be to lay in a goodly supply of fresh almonds, and to have some of them constantly within reach and to eat freely of them during the spare moments. He writes as follows:

Acting upon a hint given by my friend, Dr. Lauder Brunton, I have directed some of my patients to eat freely of fresh almonds, which are rich in oil and exceedingly nutritious, containing as they do 54 per cent. of fixed oil. According to Pavy they contain 2.677 of nitrogen and 40 per cent. of carbon. It is a custom of Dr. Brunton and several other London physicians, when hurried and tired after their morning consulting hours, to make a luncheon simply of this kind. In cases of diabetes, when digestion is not too weak, it will be found that biscuits of almond flour are exceedingly nutritious and palatable and may take the place of gluten bread.

MEDICAL PRACTICE IN MINNESOTA.—The results of seven years operation of the Medical Practice Acts in that State have been to reduce the proportion of physicians to 1 in 1,250 persons; whereas it formerly was 1 in 650. Some hundreds of pretenders have been forced to quit the State, and have gone into Michigan and other unprotected States. The present examination act has been in force three years, and in that time only 205 candidates have presented themselves for examination, of these 77, or 36 per cent., were rejected.

Death in a Dentist's Chair from Cocaine Injections.

The *Journal fur Zahnheilkunde*, September 25, 1890, reports a case of death in a dentist's chair from injections of cocaine into the gum, given for the purpose of inducing anæsthesia for the extraction of roots of teeth. The patient was a woman twenty-nine years old, apparently very healthy, but nervous. The extraction was painless, and nothing abnormal noted. The operator withdrew from the chair to get some water for the patient to rinse her mouth with, and on his return found her motionless. Physicians were summoned and artificial respiration was practiced, but without success. The autopsy disclosed the fact that three injections had been given, which served for the extraction of three roots. The quantity of cocaine in each injection was one-third of a grain.

Dufournier reports nine cases of fatal poisoning, but none of them happened to dentists, and the *Journal* thinks the case it reports the only one occurring in the practice of a dentist. This may be true but we have heard of nearly fatal cases. The action of cocaine is so very uncertain that one must use careful judgment in its ministration. It is not safe to inject a larger quantity than one-half or three-fourths of a grain, especially into vascular tissues, because its effect is carried to the heart more rapidly and the greatest effect is produced.

The longest medical courses are given at the Buddhist's Lamas' University in Thibet. The student has to study for ten years. According to *Nature*, a traveler named Ptitsyn has returned from that country with a collection of medical books and drugs illustrative of the knowledge and the methods of practice in Thibet. Mr. Ptitsyn remarks that he has found over one hundred diseases described in the Buddhist literature, and of these a mythical origin is ascribed to only two. Strictly medical subjects are not studied until the fifth year of the course, the first four years being devoted to the languages and theology.

The eighth year is devoted to astrology, and philosophy is studied in the last two years.

A Deciduous Man.

At a recent meeting of the Chicago Medical Society Dr. J. Frank reported a case where a man every July shed his skin. He was taken with feverish tremors, increasing almost to paroxysms. He undressed, lay down, and within a few minutes the skin of the chest began to turn red. The redness rapidly extended over the entire skin, and the feverish tremors continued uninterruptedly for about twelve hours. Then he arose, dressed, and walked about in perfect health. The skin now commenced to peel, and ten hours later it began to come off in great patches. From the arms and legs it could be pulled off exactly like gloves or stockings. As the old skin came away a new epidermis, as soft and pink as a baby's was revealed. This new skin was very sensitive; the patient had to wear softened gloves and moccasins for about a week. After the old cuticle had been entirely removed, the finger and toe nails began to drop off—new nails literally crowding them out. Finally the change was complete—the man had a new skin and a new outfit of nails and was ready to return to the mines. The shedding began in his first year and recurred every July thereafter.—*Medical Record*.

“SO MUCH A FOOT.”—A bran-new graduate, fresh from the parting embraces of his alma mater, was called to attend an old lady suffering from tape worm. Having relieved her of the parasite he sent in an account of 10s 6d which the patient thought exorbitant, and asked for particulars.

These were given in the following terms: “For delivering you of a tapeworm 10½ feet long at a shilling a foot, 10s 6d.”—*Medical Press*.

A BAD FIELD FOR NOSTRUMS.—There is said to be a law in Bulgaria to the effect that if a patent medicine which is advertised to cure a certain malady fails to do so, the vender of the remedy is liable for damages, and may also be sent to prison for a limited period of time as a punishment for publishing an untruth to the injury of the public.

A Laryngological Curiosity.

The *Medical Press*, December 3, 1890, states that at a recent meeting of laryngologists in London, Mr. Lennox Browne described the case of a middle-aged woman who was sent to him from the provinces for the purpose of deciding whether her malady was laryngeal cancer or phthisis. Though a tall, large-boned woman, she only weighed a little over ninety pounds, and was obviously very much emaciated. He peeped down her larynx and to his surprise saw what he recognized to be a plate with artificial teeth firmly impacted in the larynx, where it had been for the last twenty-two months unknown to the patient. She remembered having been awoke in the middle of the night by a violent fit of vomiting, and when the teeth were inquired after it was assumed that they had been thrown away with the dejections. From that day forth, however, she suffered from difficulty in breathing, pain on swallowing, etc., associated with progressive emaciation. With some difficulty the plate was removed and exhibited to the admiring friends, and the patient rapidly recovered health and spirits.

Surgical Shock.

Dr. Cheever, of Boston, makes valuable suggestions on modern surgical practice, upon the causation, aggravation or mitigation of shock. He believes that modern methods, while reducing pain and hemorrhage, have increased the tediousness of operations, the nausea, the exposure while operating, and the consequent low temperature. Primary shock is diminished and secondary shock is increased: nausea is one of the attending symptoms of shock, and is the most dangerous factor in producing anæsthesia. He maintains in regard to anæsthetics that they annul pain at the expense of nausea, and considers it an axiom that anæsthesia does not annul the existing, but only the additional shock which the pain in cutting produces. He insists that the tendency of modern surgery is to unduly prolong operations,

patients being frequently one and a half and two hours on the table, the older methods of quick surgery being abandoned.

The following are the chief rules of treatment suggested for the prevention or alleviation of shock :

BEFORE OPERATION :

1. Wait for reaction.
2. Give alcohol in some form a quarter of an hour before anæsthesia.
3. Anæsthesia to be as short as possible.
4. Operation to be as rapid as is prudent.
5. Dressing to be as short as possible.
6. The patient never to be chilled.

AFTER OPERATION.

1. Persistent and carefully applied, dry heat.
2. Nutrient enemata.
3. Hypodermic injection of brandy or some other diffusible stimulant.
4. Quiet and rest, with the head low.—*Kansas Medical Record.*

Tea Drinking and Cold Feet.

Mr. Jonathan Hutchinson says in the *Arch. of Surg.*, that he once advised a lady to drink more tea. "I cannot touch it," was her reply. "It makes my feet icy cold, and wet with cold perspiration." On further inquiry, she assured Mr. Hutchinson that she was quite certain of her facts, and had often tested them. She thought that the perspiration was usually of the soles chiefly. Her hands were, she thought, also made cold, but not so definitely as her feet. Mr. Hutchinson says he had long been familiar with the facts that tea made the feet cold, but did not know that cold perspiration attended it.—*Canada Lancet.*

DISGUISE FOR COD-LIVER OIL.—A mixture of equal parts of cod-liver oil and lime-water is said to be nearly tasteless, but may be made more palatable by the addition of an aromatic syrup.

Nasal Obstructions and Spinal Deformities.

While investigating the rachitic deformities of the spine, Dr. Redard was struck by the fact that these were frequently found in persons suffering from nasal obstruction. On the ground of his findings he considers himself warranted in formulating the following conclusions:

1. Nasal occlusion is a frequent cause of kyphoscoliosis, or deformity of the chest.

2. Scoliosis due to this cause is usually dorsal and slightly marked, but attended with important deformities of the chest, especially in females, and is developed during the period of growth in consequence of protracted inflammation of the mucous membrane of the upper air passages.

3. The nasal obstruction is mainly due to adenoid vegetations.

4. The treatment of the nasal trouble causes rapid improvement of certain forms of kyphosis, scoliosis, and abnormalities of the thorax.—*Gazette Medical de Paris*, No. 12, 1890.

Micro-Organisms in the Clothing.

Dr. Hobein, *Zeitschr. f. Hygiene*, has made a series of experiments to determine what class of goods used for under-clothing most readily take up organisms when worn over the skin, and to discover the conditions which increase or diminish their receptibility. He found that flannel goods contained more organisms than other fabrics on account of their thickness and rough surface; next as regards the number of contained microbes, were thin woolen goods, which are thinner than flannels, but more loosely woven and have a rougher surface. The smallest number of microbes was found in linen and cotton goods, which are closely woven and have a smooth surface.

The investigations further serve to show that under ordinary circumstances no increase of the organisms take place in the clothing. A marked development of the microbes on the skin or in the clothing only occurs when, owing to diminished evaporation, the skin and clothing are left moist for a long time.—*Internat. Pharmac. General-Anz.*, No. 32, 1890.

Hot Water Remedies.

Headache almost always yields to the simultaneous application of hot water to the feet and back of the neck.

A towel folded, dipped in hot water, wrung out rapidly and applied to the stomach acts like magic in cases of colic.

There is nothing that so promptly cuts short congestion of the lungs, sore throat or rheumatism, as hot water when applied promptly and thoroughly.

A towel folded several times and dipped in hot water and wrung and applied over the toothache or neuralgia, will generally afford prompt relief.

A strip of flannel or napkin folded lengthwise and dipped in hot water and wrung out, and then applied to the neck of a child that has the croup, will usually bring relief in ten minutes.

Hot water taken freely half an hour before bed time is the best cathartic possible in the case of constipation, while it has a most soothing effect upon the stomach and bowels.—*Hall's Journal of Health.*

Sanity and Insanity.

According to Dr. Geo. M. Beard the symptoms of sanity are as follows :

- I. Activity of the instinct of self-preservation.
- II. Adaption to environment.
- III. Correspondence of character to age and station.
- IV. Rememberable conscience.

The symptoms of insanity appear in the following order, the later acquisitions first disappearing and then the earlier :

- I. There is a decline in manners, that is, minor morals; then more extensive moral decline.
- II. Decline in the power of originating thought.
- III. Decline in the power of acquiring thought.
- IV. Decline in the memory of recent events.
- V. Decline in the memory of old events.

Insanity has been defined as "a disorder in the power of adjustment of the organism to its environment."

EDITORIAL.

Requirements for Admission to University of Michigan— Dental Department.

The committee appointed by the senate of the University of Michigan to submit a schedule of minimum requirements for admission to the different departments of the University, also to propose some uniform plan of discipline throughout the University, held a meeting in the president's room January 11th and agreed upon the following schedule of admission, which should apply to all students entering any department of the University, with the exception of those students who are not candidates for a degree.

1. Matriculates in any of the regular courses in the literary department, graduates of literary colleges of good standing, graduates of schools approved as diploma schools by the literary department and of other high schools of equal standing, will be admitted without examination to any of the professional schools on the presentation of proper evidence to the secretary of the faculty.

2. For all others, requirements for admission shall be as follows:

(a) English Language: (1) A grammatical and rhetorical analysis of short selections in prose and poetry. The rhetorical analysis will be confined chiefly to the meaning and forms of words, sentential structure, paragraphing and figures of speech. (2) An essay of not less than two pages, (foolscap,) correct in spelling, punctuation, capital letters, sentential structure, paragraphing and figures of speech.

(b) Mathematical: *Arithmetic*, fundamental rules, fractions (common and decimal), denominate numbers, percentage, proportion, involution and evolution, and the metric system of weights and measures. *Algebra*, fundamental rules, portions, equations of the first degree, containing two or more unknown quantities.

Geometry, plane.

(c) Natural Philosophy: An amount represented by the study with experimental illustration of Avery's natural philosophy or Gage's elements of physics.

(d) Botany: The elements of vegetable anatomy and physiology as given in Gray's lessons.

(e) Zoology: Packard's zoology.

(f) Physiology: Martin's human body, briefer course.

(g) History: General history, Truman's general sketch of European history, Myers' general history or Swinton's outlines. Higginson's or Johnston's United States.

(h) Latin: Jones' first latin book or Harkness' latin reader, or an equivalent in any other book.

It is proposed that the above requirements be exacted of students entering the University after July, 1892.

The committee has ordered its secretary to refer this schedule to the various faculties and respectfully asks that the same be approved by each faculty.

In regard to discipline, the committee recommend the following:

1. That any student who has been convicted of any offense by the civil authorities, shall be, because of this conviction, considered as suspended from the privileges of the University.

2. That any student who shall, by any misconduct, forfeit his privilege in any department of the University, shall therefore be ineligible to membership in any department of the University.

Scheme of Study for the College of Dental Surgery University of Michigan.

FIRST YEAR.

First Semester:

	Hours each week.
Osteology.....	3
Materia Medica.....	3
Analytical Chemistry and Lectures.....	18
Dental Laboratory Practice.....	10
Lectures on Prosthetic Dentistry.....	1

Second Semester :Hours
each week.

Descriptive Anatomy.....	3
Specian Dental and Practical Anatomy.....	18
Materia Medica.....	3
Dental Laboratory Practice.....	10
Lectures on Prosthetic Dentistry.....	1

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35**SECOND YEAR.****First Semester :**

Descriptive Anatomy.....	2
Comparative Dental Anatomy.....	2
Histology, Lectures and Laboratory work.....	9
Bacteriology.....	3
Prosthetic Dentistry.....	16
Operative Dentistry.....	3

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35**Second Semester :**

Physiology.....	3
Physiological Chemistry.....	3
Organic Chemistry.....	3
Prosthetic Dentistry.....	16
Operative Dentistry.....	3

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28**ENTIRE THIRD YEAR.**

Operative Dentistry.....	3
Clinical Operative Dentistry.....	15
Oral Pathology and Surgery.....	2
Dental Materia Medica and Therapeutics.....	2
Laboratory practice in crown and bridge work, construction of regulating devices, instruments and appliances for Clinical Dentistry.....	10

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Mississippi Valley Dental Association.

The forty-seventh annual meeting of the Mississippi Valley Dental Association will be held in Lincoln Club Hall, Cincinnati, March 10th, 11th, and 12th, 1891. The following programme has been arranged for :

President's address, Dr. M. H. Fletcher, Cincinnati; "Dentistry Thirty Years Ago and Now," Dr. J. W. Jay, Richmond, Ind; "Surgery of Cleft Palate," Dr. B. M. Rickets, Cincinnati; "Traumatic Lesions and Secondary Inflammation," Dr. F. W. Sage, Cincinnati; "Recent Advances in Dental Mechanism and Art," Dr. C. S. Smith, Chicago; "The Proper Sphere of the Dentist," Dr. H. H. Harrison, Wheeling; "Scientific Investigation of the Jaws and Cranium," Dr. Eugene S. Talbot, Chicago; "Why Copper Amalgam Sometimes Washes in the Mouth," Dr. W. B. Ames, Chicago; "Continuous Gum Clinic," Dr. George R. Riddell, Chicago.

There are other features that will be added to the above programme that will be announced later. The committee is putting forth every effort to make it an interesting meeting.

The World's Columbian Dental Meeting, 1893.

The Executive Committee appointed at the last meeting of the Southern Dental Association and the American Dental Association to have full charge and make all arrangements for such a meeting, held its first regular session in Washington City, January 19th and 20th.

A careful consideration of the subject made it quite apparent that a great work is before the committee and those who may co-operate with them. In looking over the whole ground the committee became strongly impressed with the magnitude of the work before them, and with the necessity of securing the interest and co-operation of the entire profession.

About twenty general committees have been designated, and appointments made to some of them, especially to those whose work should begin at once, or as soon as possible. The names

of these committees and the persons assigned upon them will be published in the next issue of the REGISTER.

In the committee there was the utmost unanimity and harmony of feelings on all matters pertaining to the great work to be accomplished. Every member seemed to realize that a great responsibility rests on this committee; one that no member can afford to neglect, nor withhold his best effort.

The next meeting will be held at Moorhead, North Carolina, August 11th, 1891.

Whales and Bacteria.

It has been discovered that human blood has a germicidal action, and medical authorities are trying to discover who was the first to notice this action. Apropos to this we now also learn that for more than five hundred years the Norwegian fisherfolk have used pathogenic bacteria in catching whales, the animals are inoculated with an infectious disease and only after they are weakened as a result of the disease are they killed. As the poisoned arrows are pulled out of the whale, bacilli cling to them, and thus render them effective as "death arrows" when further used.

What next in the field of bacteriology?

W.

To detect fecal matter in drinking water Griess recommends a feebly alkaline solution of para-diazo-benzol-sulphuric acid, which, with water contaminated as indicated, will produce a yellow discoloration within five minutes. Try it on the old well next summer.

WANTED.—The May number of the INDEPENDENT PRACTITIONER of 1881. Any one having this number will confer a favor by sending it to J. Taft, Cincinnati, O., to complete a file for a public library.

TINCTURE of iodine to moisten pumice stone is a good way with wooden points to remove the green and brown stain to be found on the teeth of the young.

W.

KEROSENE oil will instantly remove the dirt from an Arkansas stone caused by sharpening instruments. Apply with a cloth.

To clean the hands from laboratory dirt and oil we have found Pyle's Pearline to be very efficient.

DENTAL engine hand-pieces should often be taken apart and cleaned with a lubricant that will not gum. Dr. Sillito uses filtrine, an excellent oil, and by fastening a small platina tube into a glass dropper at its point, the dropper is always charged for use. Use glass dropper which serves as a stopper for the bottle. The platina tube should be quite small to enable it to be placed into the parts of the hand-piece. W.

Bibliographical.

BY B. H. CATCHING, D.D.S., EDITOR AND PUBLISHER, ATLANTA, GA.

Catching's Compendium of Practical Dentistry for 1890.

This volume is selections of valuable practical methods and processes, from the dental journalistic literature of the past year, and as a work of ready reference for the busy practitioner is very valuable indeed. The average practitioner does not take all the journals, indeed very few take more than from one to three, and perhaps in these instances they are too often but hastily scanned so that many good things are liable to escape attention.

The aim of Dr. Catching has been to cull from all the dental journals, these practical matters and put them in such form and arrangement, that they may be available, with the least possible inconvenience, to the practitioner, he has succeeded well, when it is considered that it was a first effort in this line. Nothing of the kind had ever been attempted by any one before.

This work should have a place in every dentist's office and certain it is, that wherever it may be, it will be often consulted.

It is to be hoped that the doctor will meet such encouragement that he will prepare and issue such a work each year.

We hope his most ardent anticipations will be fully met, and that he will continue in the good work he has so well begun.

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COMMUNICATIONS.

Report of Case of Cancrum Oris.

W. P. MCDONALD, M.D., HILL CITY, TENN.

Read before Tri-State Medical Association, Oct. 14th, 1890, Chattanooga, Tenn.

Ellen Maverty, white, aged 4 years, residence Hill City, Tenn.

Was called to see her first on Aug. 5th, found her with some fever, tongue coated brown, with red edges, surface more or less furrowed or full of cracks in the brown coat; her general appearance indicating a very low state of health. Her bowels were inclined to be too loose and abdomensomewhat distended, tympanitic.

With these symptoms, I at once pronounced it a case of the so-called typho-malarial fever, something not at all rare in the southern states.

I began treatment by giving her a mercurial purge followed by large doses of quinine and sub-nitrate of bismuth. Continued this treatment for two days, then ordered her to have ten drops of the syrup of the iodide of iron after meals, also quinine in small tonic doses.

Kept up this treatment for ten days and found her very much improved, having no fever, regaining her color and with it strength; appetite very good and resting very nicely all the time.

On Aug. 19th, just 14 days after seeing child first time, I was called to see the mother, whom I found with nearly the same symptoms as the child first presented. During my absence from the city another physician had treated an older daughter, whom I suppose had been troubled with the same disease, typho-malar-

ial fever. At that time, the little child, the subject of this report, was still improving, except complaining of sore mouth. On examination I found several small ulcers on the right side of mouth, with a general inflammatory condition of the gums and whole mucous lining of that side of the buccal cavity, with some bleeding from around the teeth.

The trouble at first seemed to yield to a wash of chlorate of potassium and creosote, but on Aug. 23rd, or the 17th day of illness, the inflammation increased rapidly, the whole cheek and side of face appearing very much swollen and feverish; and the inside (as best could be seen,) was fast becoming dark and gangrenous. On the next evening, Aug. 24th, a small dark spot the size of a penny, made its appearance externally, just at the right wing of the nose. This rapidly enlarged, involving the wing of nose and in proportion the tissues on either side of the central spot, and on Aug. 25th it had completely involved the right side of the nose up to the inner canthus of the eye, also the upper lip to the median line, and had spread rapidly on the cheek, reaching a point where the zygomatic muscles cross the superficial portion of the masseter. The teeth on this side became loose and dropped out, both above and below, indicating deep seated trouble, possibly necrosis of the maxillary bones. Just at this stage, the evening of Aug. 25th, the rapid spreading seemed to cease and the whole gangrenous mass commenced to loosen around the edges, still held firmly in place by the blood vessels; as we are taught that, they are lost to give way to decay.

The child's breath was very offensive from the beginning of the mouth trouble, and the odor increased as the disease advanced until the stench was more offensive than a dissecting room well stocked with cadavers.

Up to this time the child had been taking boiled milk, beef tea, etc., in sufficient quantity to support her, but here she refused everything and vomited continually from the watery discharges from the gangrenous mass passing into her stomach. She gradually grew weaker until Sept. 4th when death came to her relief, it being just thirty days from date of first illness, and sixteen days from the beginning of the mouth trouble.

Upon careful investigation I found a strumous diathesis existing in the family, but could get no history of any tuberculosis. The family were in very poor circumstances, and had lived all their lives in small, poorly ventilated houses, and had taken just such food as could be had. Just here let me say that as *gout* is a disease among aristocrats and caused from high living, so is *cancrum oris* a disease among the poverty-stricken and caused *principally* by poor living, so to find a case of either of these diseases—*gout* or *cancrum oris*—outside of the spheres of life before mentioned, is the exception and not the rule.

Now, from good authority we have it that *cancrum oris* occurs more frequently as the sequel of other diseases than *per se*.

The statistics of Pilliet and Barthez show that out of 98 cases of this trouble 41 of them followed measles; 5 scarlet fever; 6 whooping cough; 9 intermittent fever; 9 typhoid fever and 7 mercurial salivation.

Now, to draw a conclusion in this case from these statistics, and by watching the case closely from the first—Did this occur as the *sequel* of the typho-malarial fever which I diagnosed, remembering the poor state of health the child was in to begin with? Or was it the result of the *three grains* of calomel given at first and followed in *two days* by the syr. of the iodide of iron producing mercurial salivation.

A New Antiseptic in Dentistry.

W. H. WHITSLAR, D.D.S.

In the January number of the REGISTER attention was called to *Aristol*, a new antiseptic introduced to take the place of iodoform, iodole and sozo-iodol. It now transpires that *aristol* is making its way into use by the dental profession on account of its merits. Like many new drugs which have come highly recommended by the manufacturers, *aristol* receives its quota of advertisement, but it will be noticed that testimonials for its worth are from men of noted rank in medical lore. Now in the dental field of labor, Dr.

J. V. Kejzlar of Jicin, in the *Austro-Hungarian Dental Quarterly*, October, 1890, reports his use of aristol, which is as follows:

"Some time since, my attention was drawn to a new, powerful antiseptic, the thymol derivative called Aristol, discovered by Drs. Messinger and Vortmann, of Aachen.

It is the best substitute for Iodoform, which, on account of its disgusting odor, is especially abhorred by patients who have disorders of the mouth or teeth. Aristol has no disagreeable odor and is easily endured by sensitive patients. It has no toxic properties like Iodoform, does not irritate, adheres very readily to loose-lying pulps, and has excellent healing properties.

I tried it in all cases of the most varied tooth complaints, in which the hitherto available antiseptics had been used, such as gangrenous pulps, antiseptic for the root canals, disinfection of carious cavities, before introducing the filling, and so on.

On gangrenous pulps, I strewed Aristol in powder with a fine brush; for disinfecting the root canals and carious cavities, I used a ten per cent. solution of Aristol in sulphuric ether; through the rapid evaporation of the ether, the Aristol forms an even coating and rapidly dries the cavity.

For fistulous spaces, I use small rods made of ten parts cocoa butter and one part Aristol, by which granulation and healing proceed rapidly. Aristol is insoluble in water, but readily soluble in sulphuric ether, collodion and fatty substances. It is generally used in a ten per cent. solution or directly in the powdered form, externally for wounds, all kinds of swellings, for eruptions, syphilis, ozæna, otorrhœa nasofaryngeal syphilis, in gynækology and wherever antiseptics are indicated for external use.

Aristol may be regarded as an enrichment of materia medica, especially for disorders of the teeth, and it is very desirable that the remedy be further tried in this direction."

Supplementing the above it may be added that in the filling of root canals, whether results are to be credited to aristol alone, or to pure cleanliness, or to all the steps in the operation it is sometimes hard to judge, but we have been pleased to notice a less number of cases where apical inflammation was reported since the

use of aristol was begun. Out of the ninety (90) root fillings made, the following result was noted : in one case (lateral incisor), root filling was packed too tight, and the patient allowed suppuration to supervene; in another case, inferior third molar, rubber dam could not be adjusted, there resulted considerable inflammation which of its own accord subsided in a few days; only two other cases were reported of any inflammation whatever. Without entering into a discussion of root filling, we maintain that in some cases only absolute cleanliness may be necessary preparatory to root filling and no antiseptic dressing is required. The majority of cases however do need a dressing and we have found in our hands, aristol to be invaluable. It is useful in ulitis, and in painful ulcerations of the mouth. We have used it in ulcerations of the cervix uteri with success. Dissolved in chloroform about sixty grains to one-half ounce it makes a dressing that is alike useful in pumping into root canals of teeth, or covering an excoriation of the skin; in each it forms an impervious coating almost like varnish, and moisture will not ooze through it. Thus will be seen its value in root filling. The apical foramen of the tooth is sealed as also are the tubuli. But we do not wish to go wild over a new thing. Let time and trials prove its worth. All things must seek their level.

Atomic Weights.

W. H. WHITSLAR, D.D.S.

Chemistry may now be said to be an exact science, because of the fixed values of chemical bodies and the many uncontrovertible facts. In the matter of valuation, however, the Committee of Revision and Publication of the Pharmacopeia of the United States have deemed a modification necessary, and accordingly, Professor F. W. Clark, Chief Chemist of the U. S. Geological Survey, has furnished a table of atomic weights revised upon the basis of the most recent data and his latest computations. All calculations and analytical data which are to be given in re-

ports or contributions intended for use by the committee, must be based upon these values. In speaking of the matter, the *Medical Record* recommend the adoption in general by chemists of the revised table. Not that a difference of a fraction in atomic weight of an element would materially affect the composition of a medicinal compound, but it is for the sake of unity that the table should be generally adopted. Professor Clark has at his command every requisite and convenience for his work, and his authority is unquestioned.

The following table is a part of the table of weights as authorized, and will be found of interest to the dentist as well as the chemist. This table includes the official elements.

NAME.	Symb'l	Atomic Weight.	NAME.	Symb'l	Atomic Weight.
Aluminium.....	Al.	27.	Iron.....	FE.	56.
Antimony.....	Sb.	120.	Lead.....	Pb.	206.95
Arsenic.....	As.	75.	Lithium.....	Li.	7.02
Barium.....	Ba.	137.	Magnesium.....	Mg.	24.3
Bismuth.....	Bi.	208.	Manganese.....	Mn.	55.
Boron.....	B.	11.	Mercury.....	Hg.	200.
Bromine.....	Br.	79.95	Nitrogen.....	N.	14.03
Calcium.....	Ca.	40.	Oxygen.....	O.	16.
Carbon.....	C.	12.	Phosphorus.....	P.	31.
Cerium.....	Ce.	140.2	Potassium.....	K.	39.11
Chlorine.....	Cl.	35.45	Silicon.....	Si.	28.4
Chromium.....	Cr.	52.1	Silver.....	Ag.	107.92
Copper.....	Cu.	63.4	Sodium.....	Na.	23.05
Gold.....	Au.	197.3	Sulphur.....	S.	32.06
Hydrogen.....	H.	1.007	Zinc.....	Zn.	65.3
Iodine.....	I.	126.85			

From the above it will be seen by comparison with the table of atomic weights to be found in the last (15th) edition of the United States Dispensatory, that no less than twenty-two of the above elements have been changed in their molecular or atomic weight. Notably are the following: Chlorine, 35.4, now 35.45; Gold, 196.2, now 197.3; Hydrogen 1, now 1.007; Iron 55.9, now 56; Lead 206.5, now 206.95; Mercury 199.7, now 200; Potassium 39, now 39.11; Silver 107.7, now 107.92; Zinc 64.9, now 65.3, etc.

Now this difference would not practically make any difference with a medical compound, but it is for the sake of uniformity that all are requested to adopt the revision, thus saving much labor in problems of chemical equivalence.

Brain and Fingers.

In discussing educational advantages that the future student of dentistry should be required to attain in the course of study.

Dr. Geo. H. Wilson, of Painesville, said at the Ohio State Dental Meeting. "We should have brain in our fingers, and the student should be taught manipulation as well as any other part of their studies." This is only too true for we often see a clumsy looking hand made expert by education of its muscles, whereas a shapely hand is often worthless, so to speak, from its lack of usage. Then too, there is much truth in the saying "brain in the fingers," which is perhaps more than figurative language. Let us see. Nerve fibers are known to be the medium through which impulses are conveyed to nerve centre or conducted to their terminal filaments dependent upon the stimulus to create such action. In the manipulation of the fingers, in performing operations two factors are at once called into action and each factor involves other factors. Consequent upon the operation to be performed, the first factor may be that of *expression*, or, *impression*. In simple manipulation the eye perceives the condition and the brain telegraphs the mode of expression. When the eye must be assisted by the sense of touch we then have to receive impressions from the point of contact before expression is given to the mind's desire, which is still another factor in the case. Co-ordinate action of all these factors make up what we call manipulation. It is the education of these out-posts, so to speak, that produces skilled action. The mind might perceive what would be necessary to do, but the "out-posts" are unable to perform intelligently without education. Inquiry concerning the names of these efficient soldiers reveal the tactile corpuscles of meissner which are found in the skin, and the terminal nerve fibers in the muscles of the hand and arm. These are the anatomical factors that we should cultivate as they in a large measure are the distributions of brain constituents.

"WOULD any shock at this stage of my trouble cause a relapse, doctor?" inquired the patient. "Yes, and a serious one." "Please then, doctor, to remember that important fact in making out your bill."

SELECTIONS.

Dr. Holmes on Specialism.

Oliver Wendell Holmes puts in the mouth of a young doctor the following words: "I am very glad," he said, "that we have a number of practitioners among us who confine themselves to the care of single organs and their functions. I want to be able to consult an oculist who has done nothing but attend to eyes long enough to know all that is known about their diseases and their treatment; skilful enough to be trusted with the manipulation of that delicate and most precious organ. I want an aurist who knows all about the ear, and what can be done for its disorders. The maladies of the larynx are very ticklish things to handle, and nobody should be trusted to go behind the epiglottis who has not the *tactus eruditus*. And so of other particular classes of complaints. A great city must have a limited number of experts, each a final authority to be appealed to in cases where the family physician finds himself in doubt. There are operations which no surgeon should be willing to undertake unless he has paid a particular, if not an exclusive attention to the cases demanding such operations. All this I willingly grant, but it must not be supposed that we can return to the methods of the old Egyptians, who, if my memory serves me correctly, had a special physician for every part of the body; in short, falling into certain errors, and incurring certain liabilities. The specialist is much like other people engaged in a lucrative business. He is apt to magnify his calling, and to make much of any symptom which will bring a patient within range of his battery of remedies. I found a case in one of our medical journals a couple of years ago which illustrates what I mean. Dr. —, of Philadelphia, had a female patient with a crooked nose—deviated septum, if our young scholars like that better. She was suffering from what the doctors call reflex headache. She had been to an oculist, and found that the trouble was her

eyes. She went from him to a gynecologist who considered her headache was owing to causes for which his specialty had remedies. How many more specialists would have appropriated her if she had gone the rounds of them all, I dare not guess; but you remember the siege in which each artisan proposed means of defense, which he himself was ready to furnish. Then a shoemaker said, 'Hang your walls with new boots!' Human nature is the same with the medical specialist as it was with ancient cordwainers, and it is possible, too, that a hungry practitioner may be warped by his interest in fastening on a patient, who, as he persuades himself, comes under his medical jurisdiction. The specialist has but one fang with which to seize and hold his prey; but that fang is a fearfully long and sharp canine. Being confined to a narrow field of observation and practice he is apt to give much of his time to curious study, which may be *magnifique*, but it is not exactly *la guerre* against the patient's malady. He divides and subdivides, and gets many varieties of diseases, in most respects similar. These he quips with new names, and thus we have those terrific nomenclatures which are enough to frighten the medical student, to say nothing of the sufferers staggering under this long catalogue of local infirmities. The 'old fogie' doctor who knows the family tendencies of his patient, who understands his constitution, will often treat him better than the famous specialist who sees him for the first time, and has to guess at many things. The old doctor knows from his previous experience with the same patient and the family to which he belongs. It is a great luxury to practice as a specialist in almost any class of diseases. The special practitioner has his own hours, hardly needs a night-bell, can have his residence out of the town in which he exercises his calling, in short lives like a gentleman, while the hard-working general practitioner submits to a servitude more exacting than that of the man who is employed in his stable or kitchen. That is the kind of life I have made my mind up to."

FOR BITES OF MOSQUEToes AND FLEAS, also other eruptions attended with intense itching, use menthol in alcohol, one part to ten. Useful also in headache.

The Ethics of Experimentation upon Living Animals.

Cruelty may be defined as the infliction of suffering without sufficient reason. To the humane is an expression of the highest type of manhood. And surely less inhumanity can be traced through the records of science, than can be found in the annals of either religion or philosophy. Who is more altruistic, more practically philanthropic, than a physician of the better class in his daily intercourse with suffering mankind? Yet these men are periodically assailed by well-meaning if not well-informed persons, and stigmatized as wontonly cruel for performing what, in the majority of instances, are but painless operations upon otherwise useless animals. An action is good, bad or indifferent, in direct ratio to its consequences. Now, those best able to judge admit that vivisection furthers the progress of scientific investigation, and, therefore, concede its defensibility. At the same time, when merely a matter of idle curiosity, it is held to be most reprehensible. Frequent repetitions of painless experiments, however, finds its justification in the necessity for objective instruction. No person will deny that science has conferred incalculable good upon mankind. Nay, more, the burdens of the lower animals are daily being lifted by this modern offspring of the human intellect. Were it not possible to specify an individual discovery directly due to vivisection, nevertheless the fact would remain that the crucial test of all hypotheses is experimentation. And it was not until verification became the anchor of all research that knowledge ceased to drift hither and thither upon the treacherous sea of speculation. But one of the most important steps in the advancement of physiological inquiry, the discovery of the inhibitory function of the pneumogastric nerve by Weber, was the result of an experiment upon a living animal, and it could have been demonstrated in no other manner. Moreover, this same method, in the hands of Pasteur, has bestowed sufficient benefit upon the animals themselves to more than compensate for the suffering inflicted upon them in the interest of science.

Unbridled Nature is the personification of cruelty, and the few victims of scientific investigation that are sacrificed for the well-

fare of man are as nothing compared to the multitude that meet with apparently purposeless destruction. Certain facts are beyond the reach of the physiologist, except through these experiments; but since, in many instances, pain is a disturbing element, its abolition may be relied upon from this, if from no higher motive. The highest order of man feels unwilling to inflict needless suffering upon any living creature. How much right we have to the lives of the lower animals remains an open question. And thought at this stage of our civilization, it seems to be the general opinion, at least as expressed by man, that the animal shall be slain for our needs, still the causing of unnecessary pain is justly reprobated. Nearly all vivisections, assuredly in our country, are performed after the animals have been rendered insensible; but where sentiment blindly forms convictions, reason appears to hold no sway, hence, despite the facts of the case, these perennial crusades against a very necessary method of experimentation. Ultrahumanitarianism in its opposition to scientific advancement is liable to lapse into insipid sentimentality.—Dr. Stephen S. Burt in *The Post-Graduate*.

Patent Rights.

The word “patent” means “open;” and it was first made use of to describe the open letters, or “letters patent,” by which a sovereign granted to a citizen or subject a monopoly of the exclusive use or sale of any article.

The word is now, in a sense not originally intended, applied to the secret of an inventor which has by him been made open to the whole public in consideration of a right for a limited period to make and sell the thing invented.

The original patent was often for a monopoly of a commodity which the people already freely possessed. The king of England for instance, granted to individual subjects the exclusive right to sell such articles as salt and vinegar.

Such monopolies as this have been declared wrongful in England and have never existed in the United States. The only patentable thing with us is a useful invention or discovery which has never before been possessed by the people.

The theory of the patent right is this : The inventor possesses a secret likely to be useful to the people, which secret he reveals freely to the government, for the benefit of the general public. In return for his service in revealing his secret, the government grants him the exclusive right, for a limited time, to make and sell the thing which his invention covers.

The patent, therefore, is simply a contract between the inventor and the people, in which the latter grant the former the sole right for a time to the profits from this invention, in consideration of having the free possession of the invention later on.

In this country a patent lasts only seventeen years. After that time all are free to make full use of the patented invention without payment of any fee or royalty—unless, indeed, the patent is extended by special act of congress. This extension is rarely granted, and only in cases where it is held that the patentee has failed to get the benefit of his patent.

The term of a patent was formerly fourteen years, and it was renewable by the patent office for seven years more. This privilege of extension by the patent office was abolished in 1861, and the term made seventeen years.

There is much misapprehension of the extent and character or the privilege which a patent really grants.

The government, in giving a patentee the right to the exclusive possession of his invention, does not undertake to guarantee him in that right. The invention is, during the term of his patent, his property ; but he must defend it before the law in the same way that any other property must be defended.

The possessor of a horse, for instance, even if he has bought and paid for the animal, can not keep possession of it if some other person can prove that it belongs to him. The holder of a patent may lose his right to it in several ways ; and if he does lose the right to it, those who have bought of him his commodity have no more right to use it further, or to be indemnified by the government for the loss of it or its use than the innocent holder of a stolen horse has to be protected in its possession.

It is possible that some other person may prove that he was in advance of the patentee in the possession or use of what the latter

has claimed as his secret or invention. The patentee may have used fraud in obtaining his patent ; or he may be selling, as his patented article, something which is not exactly what his application described.

If the government should undertake to guarantee to a patentee, against all comers, the exclusive right to and possession of the thing patented, it would be granting a wrongful monopoly, because this would be a denial of the equal right of all citizens to sue and be sued, and to obtain judgments in accordance with equity and right.

A thing already freely made and used can not be patented. The right to use it is common to all the people. And on the other hand, the liability of the purchaser of a patented article to lose the right to use it, provided it is proved to infringe some other person's rightful patent, is a part of the defence of the equal rights of all.—*Youth's Companion*.

The Weariness of Dental Practice.

It occurs to me that I have not read in the journals devoted to dentistry any thing about the patient who spits everywhere rather than in the spittoon provided at his side. Especially is this the case when you are operating for the removal of calcic deposits. Although the incrustations may have been there for a quarter of a century, yet when they are loosened he (of course a man?) is seized with a frantic desire to get the particles out of his mouth, and fires them right and left, or straight ahead, and if he misses your eyes or face he is sure to make it tell on your window, or upon the dainty curtain which your wife or sweetheart has placed before the window. These things make life a burden.

Perhaps my city brother, with his aristocratic patients, may say that none of them do such outlandish things, but let me whisper in his ear, that he probably prevaricates. A twin brother to the man who wont spit in the spittoon is the man who sits down in your operating chair with a cigar in his mouth, and when he removes it places it on your operating table so as

to be within easy reach during pauses of work. If my city brother dosen't prevaricate when he says he hasen't any spit-on-the-window-patients, he surely lies if he denies having any of this latter class, for they are found always in the "400." They are swell society men with a touch of cockney English, just the fellows who place the dental operating room upon the same plane as that of the hairdresser. Oh! how it does my heart good to crush these pigs. If *every* dentist would do the same thing there would be less of this particular "weariness." There is another patient somewhat known here in the country, and I am sure my city brethren will recognize him at once. He is the man who breaks an engagement just at the most important date, when the tooth had after long care become ready to fill, and when it becomes bad again will drop in upon you at all outlandish times and insist upon having attention. You will see him just as your regular patient is about taking the chair, and he will beg for "just a second," or, if he don't come then he will catch you after you have your overcoat on and are starting for lunch. If he meets you at the foot of the stairway or elevator it will be all the same, the old story of "how I have suffered," and you must go back and look at it. If he don't catch you at noontime then he will corral you sure about lamplighting, when after a hard day's work your are preparing to go from your office. This is a never-ending "weariness." The way to beat this class is to bring them up with a sharp turn. Give them a second trial, and if they fail again, then tell them to go elsewhere. You can not convert one of these break-appointments-drop-in-on-you patients if the disease gets well commenced. "They are joined to their idols, let them alone."

Another weariness often commented upon is the patient who arrives when your office is full of those waiting, and loudly declares that "the filling you put in for me has come out," and upon examination you find your filling in good shape but a large cavity in an adjoining tooth, or very likely in another part of the mouth entirely, from that upon which you have formerly operated and which is evidently new and as unacquainted with fillings as a new-born babe is of clothes. She will say (for this

time it is generally a woman) "why, is that so? I thought you filled it." But of course she never thinks of the injury she has done your reputation by her proclamation to your waiting patients, or perhaps to all her acquaintances by saying that Dr. So-and-so filled her teeth and the fillings have all come out," nor does she undo the injury by going to them and correcting the statement. This class of patients seem to think that when they once have their teeth put in shape that no further decay can appear in the mouth, and if it does, it must be one already filled. This is a "weariness" which is enough to drive a man to drink, and it is universal. The best way in this case is to drop every thing, seat this patient in the reception room among the persons who have heard her statement, and prove to her at once that she is wrong. Be sure that every body in the room hears what you say.

Now, Mr. Editor, you may publish this if you want to, or trim it up to suit your taste or space. I feel relieved already to know that I have had my say upon a few of the things that make up "The Weariness of Dental Practice." A COUNTRY DENTIST, in *Western Dental Journal*.

The Blood-Supply of Nerves.

At a recent meeting of the Academy of Sciences an interesting communication was made by MM. Quenu and Lejars on some new points in the vascular distribution in nerves. Having hit upon a novel and special method of injection, they were able to recognize in the circulatory apparatus of certain nerve trunks a series of constant dispositions hitherto but little, if at all, noticed. So far their investigations have been concerned with the cervical portions of the vagus and parts of the great sympathetic. They show that the recurrent laryngeals, together with the adjacent cervical portions of the pneumogastric and sympathetic, have their blood-supply from the thyroid arteries exclusively, and the authors suggest that herein may be found a ready explanation of the aphonia as well as the respiratory and vaso-motor modifica-

tions which are observed sometimes to follow thyroidectomy and ligature of the common carotid or thyroid arteries, and they deem it not unlikely that this fact of common blood-supply may be an element in the pathology of certain forms of Graves' disease. The veins of these nerves are more abundant than the arteries, and do not always play the part of satellites to these latter, but after forming a plexus on the ganglia of the sympathetic and pneumogastric, they empty themselves into either the network of the vasa vasorum of the common and internal carotids, creating thus an intimate connection between the wall of the artery and the nerve trunks which accompany it, or they join the thyroid veins, and especially a network of veins which covers the lateral wall of the pharynx; while others open into the veins in front of the vertebræ and into those of the pre-vertebral muscles. This connection of the veins of the nerve vascular system with muscular veins was found also to exist in the case of the limbs, and the authors submit that if it be allowed that muscular contraction is a factor in the circulation in small peripheral veins, it is evident that the anatomical peculiarity observed is calculated to aid favorably the expulsion of venous blood from the nerve trunks. The writers finally suggest that the abundant blood distribution in nerves may readily conduce to congestion, and that this, in its turn, may not be without importance in the pathology—as yet but little known—of neuralgia.—*Lancet*.

Spontaneous Generation.

In an article upon this subject in the first number of the *Bacteriological World* the editor reaches the following conclusions in regard to micro-organisms:

1. That the words germs, bacteria, microbe, schizomycetes are used in our present literature almost as synonymous terms, but microbe seems preferable to germ or bacteria, and schizomycetes is a better scientific term than either.
2. That these are unicellular, and assimilate nourishment, seemingly by absorption in the media in which they live.

3. That they must transform, alter the foods found proper, and yet unfit in nature, for their use and appropriation.

4. That bacteria living on dead matter encounters no living resistance, while those feeding on living tissues, meet the living cells of the body and have to combat them.

5. That the diastases secreted by the various beings, whether highly organized or unicellular and microscopic, have something in common as to their respective objects, and their properties of transforming matter.

6. That the role of microbes in the world is complex and necessary, though some are injurious. They act as scavengers, return to the air and water the organizable elements abstracted daily by the vegetables of the globe, and indirectly by animals, and indispensable to life.

7. That the bacteria that invade living organisms which happen to be fit for their nourishment and growth, are in a sense parasites just as much as the tapeworm is.

8. That spontaneous generation of living organisms, no matter how little, is a fallacy.

Disinfection of the Hands.

Franz Boll (*Deutsche med. Wochenschrift*, No. 17, 1890), in the course of some experiments upon the best means of disinfecting the hands of the surgeon, in which the methods employed by the bacteriologists were used to demonstrate freedom from germs by gelatin cultures, comes to the conclusion that the course pursued in Mikulicz's clinic in Königsberg offers the best known practical means of accomplishing this object. This consist of vigorously brushing the hands for not less than three minutes with potash soap and water, after which they are immersed for half a minute each, first in a three per cent. solution of carbolic acid, and then in a 1-2000 sublimate solution. Finally, the subungual spaces and fold are thoroughly rubbed and cleansed with ten per cent. iodoform gauze which has been dipped in a five per cent. solution of carbolic acid. Experiments made to determine the efficiency of simple soap and water cleansing, showed this to be entirely unreliable.—*Brooklyn Med. Journal*.

The Progress of Surgery in 1890.

In the last year there has possibly been a slight lull in the accumulation of surgical discoveries, and yet we are unable to look back upon the progress of the year that has just expired without feeling that there is ample ground for congratulations to the medical profession upon the strides that have been made.

The great event of the year was the Medical Congress at Berlin, where the large attendance of men most prominent in our art and science from all parts of the civilized world brought together a wealth of facts and views that are now crystalizing into a valuable mass of information.

There has been noticed in the year gone by that reaction which was bound to follow the enthusiastic prevalence of intra-abdominal operations during the last few years. The matchless skill of the leaders in these procedures has taught us a technique that can scarcely be improved upon; while the number of operations performed has become less, through more perfect discrimination in the selection of cases absolutely requiring such measures. In the matter of operations for the relief of disorders due to inflammatory conditions of the vermiform appendix, the main points developed have been chiefly in the line of improved diagnosis, and in a general belief in the advisability of early interference.

The study of intestinal anastomosis, first evolved by Dr. Senn, has been taken up by a host of men, though, strange to say, its practical applications are still limited too much in our own country. The monograph written by Professor Senn upon the subject of the Diagnosis and Operative Treatment of Gunshot Wounds of the Stomach and Intestines, bids fair to become one of the classics of surgery for years to come. No better illustration of the progress made in this domain of surgery can be given than the brilliant results obtained by Professor Bernays in a series of seven cases of gunshot wounds of the abdomen, which formerly would have been regarded as hopeless, and left to die without surgical interference.

The methods of skin grafting and transplantation devised by Thiersch have proven their value in many hands during the past

year, and now are fully admitted among the established surgical procedures of common occurrence.

Mr. Horsley's experiments in the transplantation of the thyroid gland of animals to the human subject have been followed by a practical application of the procedure, and bid fair to add one more to the many splendid results attained by this indefatigable experimenter.

In the surgery of the joints a more conservative tendency is becoming manifest; and in Germany especially, the injection of iodoform emulsions in tuberculous joints has been employed with much success as a substitute for more radical procedures.

Among the improvements brought about in the technique of special operative procedures, the bloodless method of amputation at the hip joint, devised by professor Wyeth, of New York, and performed with success by himself and others, takes high rank.

Operations upon the nerve-centres and the nerves themselves have greatly multiplied, and operations of un-heard-of magnitude have this year been reported, by which the brain and cord have become a far wider operative field than had ever been previously thought possible.

The discovery with which Koch startled the medical world a few months since has not been sufficiently developed to permit of positive deductions regarding its value in the various forms of surgical tuberculosis, although from present indications it will supersede all other methods for the treatment of lupus.

Such are a few of the results of the past year, and in this marvellous age of progress we are left to wonder at what we may have to chronicle for another year, though we are conscious that the last one has marked a decided era of improvement in our methods and knowledge.—*International Journal of Surgery.*

COLD IN THE HEAD. For cold in the head, while in the acute congestive stage, there is no better remedy than gelseminum. One good large dose, say 10 minims of the fluid extract, taken upon going to bed, will effectually dispose of this troublesome and uncomfortable affection. One dose is usually sufficient.
Medical Compend.

ALVEOLAR ABSCESS. An abscess is a circumscribed cavity containing pus, circumscribed by the formation of a soft membrane forming a sack, restraining the pus from passing into the surrounding tissue, causing it to seek the surface at the point of the least resistance; here parting the tissues, forming an escape called a festulous opening.

An alveolar abscess is, as the name indicates, an abscess originating within the alveolar walls. They are usually formed at the apex of the roots, the death of the pulp of one root only is sufficient to cause an abscess. Alveolar abscesses may arise from other causes than that of the decomposition of a tooth pulp. Any foreign matter, such as filling material, being forced through the apex of the root, calcic deposits within the walls of the alveolus, necrosed root or bone, impacted teeth, etc., may cause sufficient inflammation of the periosteum to produce an abscess, all the successive stages of inflammation being involved in the formation of an abscess, from irritation to suppuration.

Treatment required is first to gain free access to the diseased parts, and remove the cause. This can be done by opening up the canals, and if need be, by drilling through the gum and alveolus over the affected parts (in opening up the canals it is better to sacrifice good tooth structure than to attempt to work around corners and through too small a canal, being careful not to go through the side of the root) and remove all broken down and dead tissue. Then such remedies should be used as will incite a healthy action in the parts. For this purpose there is nothing better in our materia medica than peroxide of hydrogen and bichloride of mercury. WARREN, PATHOLOGY.

ADULTERATION LAWS IN RUSSIA.—The Russian Government has recently enacted some very stringent laws against the adulteration of food and drink. Any person guilty of adulterating any article of food will be liable to a fine of \$200, or imprisonment for three months for the first offense, double this penalty for the second, and deprivation of all rights as a citizen for the third. What a sweeping revolution would follow the enactment of such a law in the United States. As a question of profit and loss, it would be simply stupendous.

Management of Primary Dentition.

According to Dr. Monti, *Journal de Sciences Medicales de Lille*, all interference with primary dentition should, as a general rule, be proscribed. Hence he considers as injurious the ordinary practices, as, for example, biting on hard objects, bathing the gums with so-called emollient substances, etc.

The only necessary measure of precaution is to keep the buccal mucous membrane in a state of perfect cleanliness. It is best, during dentition, to wash the mouth several times daily, either with pure water or antiseptic solutions. Among the latter, the most efficacious are the following :

R. Acidi boracici.....gr. xiv.
 Aquæ destillatæ.....ounces viii.
 Tinct. myrrhæ.....m xiv.—M.

Or,

R. Sodii salicylatisgr. xiv.
 Aquæ destillatæ.....ounces viii.
 Tinct. myrrhæ.....m xiv.—M.

When the milk teeth have appeared, they should be cleansed with a very soft brush, using either one of the preceding solutions, or a suitable dentifrice. The following, recommended by Zsigmondy, gives excellent results :

R. Magnesii carb
 Pulv. saponis.....aa drachm iiss.
 Pulv. ossis sepiæ.....drachm iiss.
 Essentiæ menthæ.....gtt. iv.—M.

In very young children the following may be better :

R. Magnesii carb.....aa gr. lxxv.
 Cretæ præparat.,
 Sodii salicylatis.....drachm iij gr. xiv.
 Essentiæ menthæ.....gtt. iv.—M.

When the milk teeth commence to decay they should be filled at once, that they may be preserved as long as possible.—*Dental Record*.

Dr. Chas. T. Parks of Chicago, says, all anæsthetics are dangerous, and all of them occasionally cause death, and the most astounding part about it to outside individuals is, that doctors can not tell why the patients die under these circumstances. These cases of death under anæsthetics are always unexpected, and in the vast majority of cases unavoidable.

Prophylaxis.

As a means of markedly invigorating the entire organism, and rendering thereby the system less prone to the influence of all external disease-producing agencies, an English physician reports, in a recent number of the *British Medical Journal*, the benefits of a daily morning cold bath. The bath used is *cold*. Often the ice has to be broken before the bath can be taken. Then the skin is toweled thoroughly. This physician says he never has a "cold;" never wears an overcoat—whatever the weather may be; has had no illness for many years; and would as soon think of stopping his meals, as to drop off the customary cold "tubbing."

In this connection might be mentioned the still more radical system of FATHER KNEIPP, the village priest of Voerishofen, Bavaria. It is said that he is well-regarded by the medical profession, and that many doctors go to him to learn his method of cure and care. The features of this so-called method are not at all new of themselves, and it is more the combination of requirements, together with the rigidity of procedure, which commands attention.

FATHER KNEIPP is simply a health reformer, and as such he declares strongly against all woolen garments next the skin. The underclothing he recommends is made of strong, coarse linen. Next of his requirements is the cold bath, which is to be taken quickly, and without subsequent drying of the skin. The linen garments are to be put on at once, while the moisture of the bath is still upon the body. Then comes the practice of walking or running barefooted in wet grass in cold weather, or in freshly-fallen snow. The village of Voerishofen lies in a valley where

green meadows abound, and is therefore particularly adapted to to this form of exercise. After running in the wet in this fashion the patient puts on coarse linen socks, and boots, and walks briskly for a spell. Then as to internal attention, tea and coffee are absolutely prohibited, and animal food is discouraged. Bread, fruit, vegetables and milk are the substances permitted. "There are few better meals," says this man, "than plenty of fresh fruit and a piece of bread."

The patients are advised to drink before eating, never while eating, and after eating only when it seems necessary; and then moderately. Hard beds; cool, well-ventilated rooms; and the use of good things—without their *abuse*—quite completes this hygienic plan.—*Jour. Am. Med. Ass'n.*

Dr. Henry J. Bigelow and the Discovery of Anæsthesia.

In a speech delivered at a memorial meeting of the Boston Society for Medical Improvement, on the occasion of the death of Dr. Henry J. Bigelow, Dr. O. W. Holmes said :

Dr. Bigelow sometimes paid me the compliment of asking my opinion of, and my criticism upon, an essay or a lecture he was about to read or publish. On an evening of December, 1846, he called upon me with a paper which he proposed reading the next evening at the regular meeting of the American Academy of Arts and Sciences. He began by telling me that a great discovery had just been made and practically demonstrated in the operating theatre of the Massachusetts General Hospital. He proceeded to read the paper, which was the first formal presentation to the world of the successful use of artificially produced anæsthesia in a capital operation. He had the sagacity to see the far-reaching prospects of the new discovery, the courage as well as the shrewdness to support the claims of the adventurous dentist's startling at first almost incredible, announcement. Every possible effort was made to dislodge the infant anæsthesia from its cradle in the Massachusetts Hospital, but there remains the fact that all over the wide world patients were shrieking under

the surgeon's knife and saw—operator and victim alike ignorant of the relief in store for them, at the very time when Dr. Bigelow was unfolding in my library the first paper ever written on the subject, and saying to me as he did so, that within a fortnight the news of the discovery would be all over Europe. From the first, Dr. Bigelow was the steady, unflinching advocate of ether as the safest of the anæsthetics, and his views, though not universally accepted, have had a very wide and lasting influence.—*Northwestern Lancet.*

Solution for the Eczema of Dentition :

R. Hydrochlorate of cocaine 2 grains.
 Bromide of potassium 15 grains.
 Pure glycerine }
 Distilled water } of each $\frac{1}{2}$ ounce. ℥.

Rub thoroughly together, and apply to the parts with the soft part of the finger. If insomnia is present, owing to the itching produced by the eruption, a teaspoonful of a syrup made up as follows will be found useful :

R. Bromide of potassium 7 grains.
 Syrup of orange 1 ounce. ℥.

For the cure of the condition, an ointment composed of oxide of zinc, 1 drachm, and vaseline, 3 drachms, may often be employed with advantage.—*Medical News.*

THEINE IN THE TREATMENT OF NEURALGIA.—Every now and then cases of neuralgia are reported which have been treated successfully by the hypodermic injection of theine. The local anæsthetic action of this alkaloid was, we believe, first brought to the attention of the profession by Dr. Thomas J. Mays, about four years ago, who, from his experimental and clinical investigation, concluded that its physiological action is not identical with that of caffeine, and that its analgesic action is more prompt and more permanent in neuralgia than that of morphine, or of any of the other agents in common use for the purpose of deadening pain.

An Animated Manikin.

In the Vienna letter to the *Medical Record*, speaking of the throat-clinics the correspondent says: No notice of throat study here would be complete which ignored the distinguished usefulness of one Frau Gailey, a ward employee in Professor Shrotter's clinic. Though at least sixty and though she has lost one eye, this person exercises a marked fascination over all young students. The charm lies in the remarkable tolerance of instruments and foreign bodies which her larynx has by long practice acquired. Her occupation has thus come to be that of an animated manikin. For one gulden (40 cents) and a glass of wine she permits the student to introduce instruments, place and return foreign bodies, etc., by the hour. So skilled is she that the operator's mistakes are corrected by her hand directing his, till the right spot is reached.

The Causes of Dyspepsia.

One of the most frequent causes of dyspepsia (says Dr. Wm. Pepper), is the constant use of irritating substances, such as tobacco, alcohol and highly seasoned food.* Tobacco and strong tea and coffee act both by depressing the nervous force of the stomach and, if swallowed, by directly interfering with the digestive processes. It will not be disputed by any fair-minded person that tobacco, tea and coffee are injurious when taken in excess. It must be admitted that the majority of men, in a state of health, can use a certain amount of tobacco without injury. This amount varies with the individual but is in any case small. I cannot speak too strongly against the filthy and disgusting habit of chewing tobacco.

The *British Journal of Dermatology* gives the following formula for perspiring hands.

R. Eau de Cologne.....	120 parts.
Tinct. Belladonna.....	15 “

Items.

On a recent occasion George Bancroft, the historian, told a bevy of young girls the secret of long life lay in never losing one's temper. If you will never get angry, he said, you will live to be ninety.

Washing the face and hands with pure water aided with a wash rag or sponge, and drying thoroughly with a very soft towel, is, perhaps the best way to keep a good skin.

Water that is clear is not always pure. It may contain the seed germs of disease.

We have seen men and women increase their lung power by five minutes exercise night and morning. Stand straight up on the balls of the feet, head thrown back, and inhale deeply, first inflating the lower part of the lungs then the upper. Then expire slowly, letting the chest sink first and the lungs. Do this fifteen times, morning and evening, and you will be well repaid for the time spent, by fewer colds and little catarrh.

Deciduo-Permanent Teeth.

We are often brought face to face with a case in which one or more of the temporary teeth are retained in place long after they should have been shed. This is least frequent with the central incisor, occurs oftener with the first temporary molar, second temporary molar, lateral incisor and cuspid, in the order named. When any of these teeth are found in the mouth, even if partially loosened, unless there are good reasons to expect that the permanent tooth will succeed upon the extraction of the temporary, it is better to suffer it to remain. They are sometimes retained through life, and are often seen in persons at thirty or forty, though it is true that many are lost between twenty and thirty.

Not long since we saw an instance in which a dentist extracted two temporary cuspids in a young lady of eighteen; but as within two years the permanent teeth did not erupt artificial substitutes had to be made. Fill and save these teeth, and by judicious grinding away of the antagonists relieve them of a part of the burden of mastication.—*Dental Review.*

Italian Quacks and the Lymph.

The *Basler Nachrichten's* special Italian correspondent, writing from Milan, states that Koch's discovery is there degraded in a highly disgraceful manner. Circulars are sent around by obscure doctors announcing that they have just received a sufficient of Koch's Lymph with which they are prepared to cure consumptive patients. The lymph is in no case genuine, and yet phthisical patients, of whom there are many in Milan, flock to fill the coffers of these medical *chevaliers d'industrie*. The authorities have, as yet, taken no steps to prevent or punish this abuse. The following is a translation of the inscription on the sign-board of a "dispensary:" "Teeth extracted, corns cut, and tuberculosis cured after Professor Koch's method."—*British Med. Journal*.

TREATMENT OF DYSENTERY BY IRRIGATION OF LOWER BOWELS. Dr. Koritin reports fifteen cases of dysentery cured by irrigation of the lower bowels. He had nine cases of the diphtheritic form of dysentery and six of the catarrhal (according to Virchow's division of the disease). In two diphtheritic cases a solution of carbolic acid, 1 drachm to six pounds of water was used; and in seven cases, grains xx to six pounds of water. In the catarrhal form: in two cases, grains xx; in one, grain x to six pounds of water, and in three other cases pure water was used. The author, after fully describing each case, concludes his interesting article, saying that though he has used besides the irrigation some of the popular internal and external remedies, nevertheless, he thinks that the course of the disease, as given in his description, was modified by the irrigation.

MEDICAL ACHIEVEMENT IN CHINA. It is said of Dr. Kerr, a medical missionary in Canton, that he has in the past thirty-six years, treated over 520,000 patients, and has prepared twenty-seven medical and surgical books. He has trained one hundred medical assistants, chiefly Chinese. China now possesses one hundred and four hospitals and dispensaries, at which, in 1889, more than 348,000 patients received treatment. *Med. News*.

ABSORPTION OF TUMORS BY ELECTRICITY.—Dr. Moritz Meyer reports a number of instructive cases in which he caused the disappearance of tumors by percutaneous galvanization and faradication. In 1859 he removed, by means of the faradic current, an indurated tumor of the neck the size of a man's head, which the celebrated Langenbeck had regarded as inoperable. Several years ago he produced, in this way, absorption of a mass of callus of the size of a fist, on the elbow joint, and last year obtained the same result in a case of callus formation on the second phalanx of the right index finger which had rendered the patient unable to work. After thirty-seven sittings the tumor had disappeared, and the function of the joint was completely restored. In a case of chronic synovitis, which was only temporarily improved by massage, galvanization effected a perfect cure, and this was also observed in a case of gouty deposits in the sheaths of the tendons. For galvanization the author employs flexible electrodes of various size adapting themselves to the surface of the body.—*Berlin. Klin. Wochenschr.*, November 30, 1890.—*Int. Journal of Surgery.*

FLORIDA'S UNIVERSITY.—The plans of the buildings for the projected university at Tarpon Springs, Fla., of which Dr. Charles E. Sajous, of Philadelphia is president, are now in hand, and it is stated lectures are to be commenced on October of next year. At first there will be only one building, but others are to be added. The lines of Harvard are to be closely followed, and there will be faculties of medicine, law, theology, arts, veterinary surgery, and dentistry.

The university has been mainly founded for students of debilitated health who are compelled by the severity of the Northern winters to forego study during those months and to travel in the South. The medical department will give special attention to the study of climatic treatment of pulmonary affections. There will be a sanitarium and colony founded in connection with the university, and the whole will form a health resort for the winter months corresponding to the European Riviera.

PHOSPHATE OF LIME.—Phosphate of lime is a medicine much under-valued. It builds up the constitution by aiding digestion and nutrition, and enables the bony system to grow much faster than without its use. It can be made into a syrup and given to children with rachitis, or it may be administered in combination with the hypophosphites and other well-known preparations, as manufactured by reliable pharmaceutical houses.

During pregnancy the lactophosphate of lime should be given for the growth of the fœtus, especially in women of such constitution that the drain on the system is very great, and even then the child will be born sickly and with weak bones.

MICROBES IN THE STOMACH.—Dr. Kianovski details in the last two numbers of the *Vrach* some observations he has recently made upon the bacteria contained in the stomach before and during digestion, with the object of determining the effect of the gastric juice upon them. He found that the fasting stomach of a healthy person always contained a large number of microbes, and that in the earlier part of digestion the number of these bodies is also considerable, and that it depends mainly on the number introduced by the food, saliva, etc. Notwithstanding this, the gastric juice, or rather, perhaps the free hydrochloric acid in it, tends to exert a decidedly destructive influence upon the microbes. No effect appears to be produced upon the process of digestion by these bodies.—*The Lancet*.

KOCH'S CURE FOR CONSUMPTION.—It will be remembered that Professor Koch created a certain sensation at the International Medical Congress by stating that his unceasing efforts to find a remedy for tuberculosis seemed, at last, about to be crowned with success. Since then experiments with the new remedy have been going on in Professor Senator's department of the Charite. The time is, of course, much too short for any thing like definite results, but as the experiments proceed the veil of secrecy will no doubt be lifted.—Berlin Correspondence *British Medical Journal*.

INFECTIOUS ORIGIN OF TETANUS.—The view that tetanus is (*Bulletin de la Gazette Medicale*) infectious has long been prevalent in France and other countries. Recently Leyden has reported to the Society for Internal Medicine of Berlin, three cases of tetanus in man, one of which was cured. In the three cases the bacillus of Nicolaier was found in the neighborhood of the "tetanic" wound; inoculations successively upon the mouse, rabbit, and dog, producing the characteristic disease in each instance. With the first two animals the result was fatal. The interesting conclusions in these cases relate to pathogenesis and treatment. We can believe with Leyden that tetanus is a virulent disease, the symptoms being caused by the contact of the poison with the nervous centres, without the intervention of anatomical lesions that are problematical. For the same reason we can admit that the chances of a cure augment as the disease lengthens, and if the patient survive the sixth day there is a good chance of recovery. The indications for treatment point more strongly to local antiseptics, than in any other microbic or virulent disease.

PYOCTANINE. The aniline colors have among them several members of the fraternity of antiseptic substances. Pyoctanine is the name of the violet and yellow members. Other aniline colors will probably assert their properties in that line within a short time. Heretofore we could often find out to what antiseptic substances a surgeon was partial by the various odors that permeated him as with a garment, but at present the hues that variegate his hands will give him away. Members of the profession that are endowed with an artistic eye will be able to dress wounds with picturesque effect. Two liberal an employment of primary colors will be described as rather harsh treatment. There will be simple, steady, reliable elderly gentlemen who will be content with a monochromatic dressing, while others, often of lesser years and more æsthetic tendencies, will stake their reputation and their patient's welfare upon an application of substances cunningly mingled, so as to resemble more in general effect the every-day patchwork quilt of our aunts and the coat of Joseph. *International Jour. of Surgery.*

The Influence of Organic Acids upon the Salivary Conversion of Starch.

Salkowski investigated in the course of his trials regarding the usefulness of saccharine, the digestion of starch under the influence of this agent. He discovered that a concentrated and even a five-times diluted solution of saccharine entirely inhibits the influence of the salivary ferment upon starch. He regards this effect exclusively as an acid effect, because it entirely disappears when the mixtures are neutralized. John investigated the influence of a large number of organic acids upon the starch conversion, and found that the organic acids of the fat series in very small proportion (hydrochloric acid also) promote the saccharification of starches by mixed unfiltered saliva of alkaline reaction. This effect depends upon a union with the acids. By means of small quantities of free acids an inhibition of salivary action is induced, the inhibition coefficient stands in no relation to the chemical constitution of the acid. Oxalic acid, which acts most poisonously upon the general system, also possesses the greatest power of inhibition upon the diastatic process; acetic acid, which is most commonly used, possesses almost the least, a fact which probably may be explained upon the theory of adaptation. It is remarkable, too, that the apparently innocent tartaric acid exercises a very powerful inhibitory influence. Hence, it would appear that a union of the salivary ferment with an acid is not the effective principle of the inhibition. This effect of organic acid upon the salivary enzyme may be compared, on account of its want of amenability to any law, to the effect of an anti-bacterial agent upon the vital process of the lowest life elements. *Virchow's Archiv.*

INFANTILE CONVULSIONS.—Dr. Jacobi first orders a purgative dose of calomel and then follows in a few hours by :

R.	Chloral hydrat.....	iv grains.
	Potas. bromid.....	vij grains.
	Aquæ }	
	Syrupi }	aa j fluid drachm.

Sig. One dose for a child 2 years old.

THE INTERNATIONAL MEDICAL CONGRESS AT BERLIN.—The first volume of the *Transactions* of the International Medical Congress at Berlin is already in the press, and will be published in November. In addition to the business part of the proceedings, lists of delegates, members, etc., it will contain the report of the general meetings of the congress. The work of editing the *Transactions* is in the hands of a committee composed of Professors Virchow, von Bergmann, and Waldeyer. The expenses incurred by the city of Berlin in connection with the recent International Medical Congress amounts to some 80,000 marks, so that of the sum of 100,000 marks voted by the municipality, a balance of 20,000 marks (£1,000) remains in hand. The expenses included the cost of the *Festschrift* presented to members of the congress, the banquet in the Rathhaus, the exhibition, the sanitary and other inspections, and the electric illumination.—*Brit. Med. Journal*.

SOLUBILITY OF NEW MEDICINES.—The following table of solubilities of some new medicines may be useful to some of our readers:

One part of	Water	Is sol. in Alcohol.	Ether.
Antifebrine	200	10	10
Antipyrin	1	1	50
Antithermin.....	{ slightly soluble.	slightly soluble.	slightly soluble.
Cocaine hydrochlor.....	5	10	
Iodol.....	5000	3	1
Paraldehyde	10		
Pyrodine.....	1	1	
Quinoline tartar.....	80	150	
Resorcin.....	1	1	
Salol.....		5	5
Thallin (sulphate).....	7	100	
Thallin tartrate.....	10		
Urethane.....	1	0.6	

Pharm. Record.

Coffee.

After years of extended observation and pronounced personal experience I feel justified in announcing :

1. The world has in the infusion of coffee one of its most valuable beverages.

2. As a prompt diffusible stimulant, either by the stomach or by injection into the rectum, it is in all cases of shock preferable to alcohol.

3. It is antagonistic to malaria, and specially destructive to the typhoid bacillus and cholera germ, and for this reason it is an admirable remedial agent in these conditions both as a direct stimulant, an antiseptic and an encourager of elimination.

4. One of its chief advantages in health and disease is in the fact that it aids in the securement of that psychical satisfaction which is conducive to hope, comfort, good digestion, great power of resistance and rapid recuperation.

5. In season, it supports, tides over dangers, helps the appropriative powers of the system, whips up the flagging energies, enhances the endurance, but is in no sense a food, and for these reasons and many others, it should be used temperately, as should all of nature's benign gifts.

6. In excess it is even more dangerous than alcohol for it is not like the latter, a nutrient, nor is the effect of its excessive use so apparent or unrespectable.—*I. N. Love, M.D., St. Louis, Missouri.*

DEFECTIVE TEETH. To briefly recapitulate, teeth whose structure has been impaired during their development may be divided into two classes, according to their cause: 1st the teeth of congenital syphilis, which are usually unmistakable; 2nd, teeth whose defective structure owes its origin to either stomatitis or any of the eruptive fevers. In this class it is quite impossible to tell which disease has been the cause without inquiring into the history of the case, and even then it is not always possible to make up one's mind. W. S. HOLFORD, in the *Dental Record*.

Concentrated Foods.

Among the products that properly have their sale through druggists are the concentrated foods which the intelligent physician of to-day finds an indispensable adjuvant to medicinal means of sustaining nutrition in diseases attended with enfeeblement of the digestive and assimilative functions.

What may be termed hypernutrition is now an established and important method of treatment in all wasting diseases, and notably in the great devastator of human life, pulmonary consumption.

The role of concentrated foods is not limited, however, to the invalid alone. The problem of affording armies, large forces of laborers, or the inmates of large charitable institutions an available concentrated nutritious diet is one of the greatest importance.

Dietetics, or the selection of proper alimentation representing the highest nutritive power and requiring the least effort of the digestive functions, is an art in which progress is of national interest.

One need only allude, as illustrations of the application of such foods, to the great army of dyspeptics whose views of life are embittered by their inability to digest ordinary foods, and to the alarming prevalence during the hot months of infantile disorders dependent largely on improper or irritating diet.
—*Druggists' Bulletin.*

Sir Richard Quain.

Sir Richard Quain, the new medical baronet, is one of the members of the medical profession who is most popular outside his profession. For many years he has been *persona grata* in literary, artistic and official circles, and has numbered among his friends or acquaintances most of the great artists and men of letters of the last two generations. For in spite of his iron-gray hair, active habits and untiring energy in the discharge both of his professional and social obligations, Dr. Richard Quain must have already exceeded the Psalmist's span. At Mallow, Sir Richard first saw the light, and his first introduction to medical practice took place in

Limerick. He soon found his way to London and quickly began to make his mark, being for some years the righthand man of the late Dr. C. J. B. Williams, and then one of the physicians appointed at the institution of the Hospital for Consumptives at Brompton. For many years now he has possessed one of the leading consulting practices in London. His *magnum opus* is the famous "Dictionary of Medicine," which took some ten or twelve years to prepare, and in the production of which he obtained the assistance of most of the best known medical writers.—*London letter to Jour. Am. Med. Ass'n.*

Cocaine Again.

On the 2d of December, 1890, M. Hallopeau, reported to the Academie de Medecine a case of chronic cocainism induced by a single injection into the gum of 8 centigrams of hydrochlorate of cocaine. From a study of this case, he believes himself authorized to deduce the following conclusions:

A single injection of cocaine, even in a small dose, may not only produce immediate toxic symptoms of a grave character, but may give rise to symptoms persisting for several months. These distant symptoms are analogous to those perceived sometimes immediately after the injection, viz.: obstinate headache, insomnia, numbness of the extremities, attacks of faintness, dizziness, prostration, loquacity and a state of great agitation. These accidents are chiefly in very excitable subjects.

In the current number of *La Medecine Moderne*, M. Reclus, who employs cocaine largely, endeavors to controvert these statements of M. Hallopeau, and asserts that, properly managed, this valuable anæsthetic is innocuous. The rules to be followed in the management of this drug are, according to M. Reclus, as follows;

1. The quantity of cocaine injected should never exceed 12 centigrams, 2, 4, 6, or exceptionally 8 centigrams sufficing for most minor operations.

2. Employ a *weak solution* (2 per cent).

3. Avoid the introduction of the drug into the interior of a blood-vessel. The best way to avoid the evil consequences of such

a *contretemps* is to push the needle into the tissue slowly, and while so doing to press on the piston-rod at the same rate. In this manner, even if a vessel be pierced, only a small proportion of the solution can mingle with the blood contained in the wounded vessel.—*Paris letter to Jour. Am. Med. Ass'n.*

WASTE AND REPAIR. The object to be attained also determines our choice of diet. There are conditions of mal-nutrition in which we aim to store up food in the body. In these conditions we study the assimilation, and we use food which is easily digested. We put the individual at rest so that all his nerve force may be reserved for nutritive processes. By massage and electricity we stimulate the assimilative power and then we crowd the stomach and liver. In such conditions of mal-nutrition this crowding can be borne for a time and good results follow. Finally, however, we come to a point where the needs of the system have been satisfied, and further continuance of the sick-room diet results only in choking of the excretory channels. The stuffing process is a remedial measure. Normal working diet is altogether a different thing. A good working diet is that which supplies the body with nutritive material, little by little, as required. The food which supplies this properly is always comparatively indigestible. In the case of the laboring man it is pork and beans, hard boiled eggs, crisp, fried steak, and the like. A broiled tenderloin would not answer his purpose half so well; while for you it may be essential on account of the weakness of your digestive powers. To repeat something we have said before the stomach is like the coal-box of the engine. To empty the coal-box all at once into the furnace is neither effective nor economical. The result would be one great fire which would carry you part of the distance, and would then leave you standing on the track; while if you had supplied the same coal to the furnace by the shovelfull it would have furnished force sufficient to have completed your journey. In another respect, too, the analogy is good. The over-heated engine is often permanently damaged. The body flooded with easily digested but unassimilated foods, soon shows evidences of injury in gouty joints, diseased kidneys and liver. *The Nightingale.*

Bacillary Partnerships.

In the course of some experimental investigations on the relationship of micro-organisms with diseased conditions, Drs. Cornil and Babes have discovered that a certain affinity exists between particular species. In other words, the development of special varieties may be facilitated, or the reverse, by the presence or pre-existence of certain other varieties. In this way the occasional complication of an existing infectious disease by a second is not the result of mere chance, but is governed by some still undefined conditions of environment. In other instances this association of two or more species of micro-organisms is necessary to the evolution of the malady. This association is the rule in the infectious diseases of human beings, and it is often the secondary infection that determines the fatal issue. This partnership arrangement may take place between microbes belonging to more or less nearly related species, as in the case with the organisms of pneumonia and typhoid fever. Or there may be streptococci and bacilli together, as in diphtheria, or several varieties of streptococci, as in the infection of wounds. In fact, there is a large selection of these associations, some invariable, others frequent, and a third category in which the secondary infection is accidental. These facts may possibly throw some light on the rhythm and sequence of the symptoms in the infectious diseases.—*Medical Press.*

MICRO-ORGANISMS OF THE HUMAN MOUTH. By Willoughby D. Miller, D.D.S., M.D. What the *Medical Record* says about it. Some idea of the thoroughness with which this work has been prepared is gained by a glance at the bibliography which contains about two hundred and fifty references. Part I of the volume comprising general bacteriological studies, with special reference to the bacteria of the human mouth. A brief but comprehensive discussion is given of the forms of bacteria, their origin, reproduction, life conditions, and their behavior toward various chemical and physical reagents. Their vital manifesta-

tions are given at some length. No less than seven substances found in the mouth serve as nutrient media for their reproduction. Among these are the normal saliva and mucus, softened dental tissue, and accumulated particles of food. Full directions are given for the proper conduct of studies and experiments along the lines indicated. Chapter VII is entitled "Original Investigations on the Decay of the Teeth," and naturally attracts the most attention. Part II treats of the "Pathogenic Mouth Bacteria and the Diseases which they Produce."

We have not space to speak in detail of Dr. Miller's conclusions. They are of interest not only to dentists, but to all engaged in bacteriological work. From his name we conclude that he is an American, and we are glad to have such an able representative at one of the largest and most famous of the European universities.

In using chloroform as an anæsthetic the decomposition of the vapor in the presence of artificial light, especially gas, produces irritating and noxious fumes. These have been analyzed by Kunkel and found to consist principally of hydrochloric acid. Where free ventilation is not possible, water or lime water, or a solution of soda, exposed in a basin or sprayed will neutralize the acid.—*Med. and Surg. Reporter.*

The medical as well as the dental profession are pestered with sensational doctors. In Omaha, so it is said, a free entertainment and polyclinic is conducted by "German doctors" in one of the theatres. Admission is free, and tumors are removed or cross-eyes streightened in full view of the audience. "The entertainment is pleasing and instructive" (?), and no doubt morbid curiosity is gratified.

THE proceedings of the recent meeting of the Mississippi Valley Dental Society will be published in the next Number of the REGISTER.

Societies—Illinois State Meeting.

TO THE EDITOR OF THE DENTAL REGISTER:

Dear Sir:—The following programme is arranged for the Illinois State Dental Society to meet at Bloomington, May 12, 13, 14 and 15, 1891.

1. Annual address by the president, Dr. Truman W. Brophy, of Chicago.

2. Report of committee on dental science and literature, by Dr. J. D. Moody, of Mendota, Chairman.

3. Report of the committee on dental art and mechanism by Dr. W. B. Ames, of Chicago, Chairman.

4. How to deal with the condemned pulp by Dr. J. G. Dickson, of Carmi. Discussion to be opened by Dr. J. G. Reid, of Chicago.

5. The preparation of teeth for filling, by Dr. Edmund Noyes, of Chicago. Discussion to be opened by Dr. George H. Cushing, of Chicago.

6. Prosthetic dentistry, by Dr. W. T. Magill, of Rock Island. Discussion to be opened by Dr. E. C. Stone, of Galesburg.

7. Third period in the history of dentistry, continued with biographical notes, by Dr. John J. R. Patrick, of Belleville.

8. Experimental studies on the action of diffusible medicinal agents in living and pulpless teeth, by Dr. A. W. Harlan, of Chicago. Discussion to be opened by Dr. P. J. Kester, Chicago.

9. Architecture of the first upper molar, by Dr. Alton H. Thompson, of Topeka, Kansas. Discussion to be opened by Dr. A. B. Freeman, of Chicago.

10. A lantern view of the pulp chambers and canals, showing typical forms and variations, by Dr. D. M. Cattell, of Chicago. Discussion to be opened by Dr. G. V. Black, Jacksonville.

11. Efficiency and simplicity in regulating appliances, by Dr. E. H. Angle, of Minneapolis, Minn. Illustrated by stereopticon. Discussion to be opened by Dr. C. S. Case, Jackson, Mich.

12. Low fusing continuous gum body, by Dr. George Cunningham, of Cambridge, England. Discussion opened by Dr. W. B. Ames, Chicago.

13. Report of Supervisor of Clinics, by Dr. Louis Ottogy, of Chicago, Chairman. With discussion.

Dr. W. O. Kulp, Davenport, Clinics, Iowa. Art Technique.

Dr. I. P. Wilson, Burlington, Iowa. Root-filling.

Dr. R. H. Mace, Belleville, Ills. Filling at the cervical border using extension arm cervix clamp, also, a new suspension removable bridge.

Dr. W. B. Ames will demonstrate Dr. Cunningham's low fusing body for continuous gum.

Dr. Edgar Palmer, of La Crosse, Wis. Administration of narcotic vapors, using valved inhalers.

Dr. A. O. Hunt, Iowa City, Iowa. A new bridge.

Dr. E. E. Hughes, Des Moines, Iowa. Gold inlay.

Dr. Geo. H. Slyfield, Waukegan, Ills. Contour gold filling.

Dr. K. B. Davis, Springfield, Ills. Artificial crown.

Dr. S. F. Duncan, Joliet, Ills. Method of striking up crown tips.

It is particularly requested that those having pathological specimens, peculiar cases, models, new appliances and methods, will bring them to the meeting.

All practitioners of Illinois (including non-members) and of other States, are cordially invited to attend. They are especially urged to be present at the opening day and to remain through to the last session.

The usual reduction in hotel rates and railroad fares will be allowed. J. W. WASSALL, Chairman Executive Committee.

Northern Ohio Dental Association.

The forty-second annual meeting of this body will be held at Oberlin, O., in the Y. M. C. A. building, Tuesday, May 12th, 1891, at 10 o'clock A.M. continuing three days. A very interesting program has been prepared, embracing the following subjects, viz.:

"Development of the Teeth," paper by Dr. W. H. Whitslar, of Youngstown, discussion opened by Dr. A. J. Dowds, of Can-

ton; second, "The Recurrence of Decay in Teeth," paper by Dr. J. G. Templeton, of Pittsburg, Pa.; third, paper by Dr. W. H. Atkinson, New York, subject, "Hind Sight," discussion opened by Drs. C. R. Butler, Cleveland, and E. J. Waye, Sandusky; fourth, "Sanitary Condition of the Mouth, and How Best to Maintain It," paper by Dr. J. F. Dougherty, of Canton, discussion opened by Dr. W. T. Jackman, of Cleveland, and Dr. J. H. Wible, of Canton; there will also be presented a number of voluntary papers, incidents of office practice, and several clinics, among which are the following: "A Tin Filling with Gold Facing," by Dr. S. B. Dewey, Cleveland; second, "Electricity Supplemented with a paper," by Dr. Frank Creger, Fremont, O.; third, "Melting an Ingot of Amalgam," followed by a talk on the same, by Dr. J. F. Siddall, Oberlin, Ohio.

This promises to be an unusually interesting meeting and we hope that all the dentists who can will make arrangements to attend and carry with them any new appliances, devices, models of interesting cases, or report of some case in practice.

Any desired information may be had by addressing Dr. Henry Barnes, 106 Euclid Av., Cleveland, O.

SOCIETIES.

American Medical Association, Section of Oral and Dental Surgery.

The forty-second session of the American Medical Association will be held in Washington, D. C., on Tuesday, Wednesday, Thursday and Friday, May 5th, 6th, 7th and 8th, commencing on Tuesday at 11 o'clock, A. M.

The following is a list of Essayests (with subjects), who have promised to prepare papers for the section of Oral and Dental Surgery.

1.—Address of the Chairman of Section, Dr. Eugene S. Talbot.

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- 2.—Adenoid Growth, Dr. W. H. Atkinson.
 - 3.—Treatment of fractures of the Maxillas, Dr. Wm. Carr.
 - 4.—Genesis of Contour Fillings, Illustrated, Dr. George S. Allan.
 - 5.—The teeth of Invertebrate Animals, Dr. A. H. Thompson.
 - 6.—A Study in Comparative Dental Anatomy, Dr. Wm. H. Potter.
 - 7.—Rheumatic and Gouty Diathesis as manifested in diseases of the Peridental Membrane, Dr. John S. Marshall.
 - 8.—Dental Infirmary Patients—The Use and Abuse of Dental Charity, Dr. Richard Grady.
 - 9.—Growth of the Cementum, Dr. R. R. Andrews.
 - 10.—Remarks on Incipient Necrosis and Caries, Dr. J. L. Williams.
 - 11.—Choice of Therapeutic Filling Materials, Dr. W. W. Allport.
 - 12.—Care of the Teeth, Dr. J. Taft.
 - 13.—Thorough Dentistry vs Partial Dental Surgery, Dr. J. Y. Crawford.
 - 14.—Dr. Thos. Fillisbrown.

Other members who desire to read papers before this section should, as required by the By-Laws, forward the paper, or its *title and length*, to the Chairman, Dr. Eugene S. Talbot, 125 State Street, Chicago, Ills., one month before the Meeting.

HENRY W. MORGAN,

Secretary.

Nashville, Feb. 23d, '91.

THE next Meeting of the National Association of Dental Examiners will be held at Saratoga, probably on Saturday, August 1st, 1891. It has not seemed practicable to arrange an earlier time for the meeting. It is to be hoped that all of the Boards in the country will be represented.

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PROCEEDINGS.

Pittsburgh, Pa., Odontograph Society.

The annual meeting of the Odontograph Society was held in the parlor of Library Hall, January 22, 1891, President H. Depuy, presiding.

Dr. J. A. Calhoun read a paper entitled: "Latest Theories on Decay of the Teeth." Dr. George Shidle one entitled: "Dental Societies."

The Secretary reported forty-seven members in good standing. At this meeting thirty-two volumes were contributed to the library. The following officers were elected for the ensuing year:

President—Dr. F. S. Whitsler, Youngstown, O.

First Vice-President—Dr. W. F. Fundenberg.

Second Vice-President—Dr. W. A. Kessler.

Secretary—Dr. W. H. Fundenberg.

Treasurer—Dr. W. A. Lee.

Librarian—Dr. H. L. Reinecke.

Board of Censors—J. S. Goshorn, C. J. Phillips, L. Depuy.

Executive Committee—W. H. Fundenberg, George Shidle, C. B. Bratt.

EDITORIAL.

**Fifty Ologies that Concern the Dental Profession. Ology,
Discourse, Treatise. A Science the Name
of which Ends in Ology.**

Adenology, a study of glands.

Aetiology, a study of the cause.

Angiology, a study of vessels of the body.

Arteriology, a study of arteries.

Anthropology, a study of the structure and functions of the body.

- Arthrology, a study of joints.
- Biology, a study of living things.
- Bacteriology, a study of bacteria.
- Chondrology, a study of cartilages.
- Craniology, a study of structure and uses of skulls.
- Dentology, a study of teeth.
- Electrology, a study of electricity.
- Embryology, a study of the embryo and its development.
- Hæmatology, a study of blood.
- Histology, a microscopical study of anatomy.
- Homology, a study of similar parts.
- Hydrology, a study of the properties and nature of water.
- Hypnology, a study of sleep.
- Iamatology, materia medica.
- Lithology, a study of calcareous concretions.
- Membranology, a study of membranes.
- Micrology, a study of microscopical plants and animals.
- Micristology, a study of the minutest organic fibres.
- Morphology, a study of ideal forms of parts, or organs of plants and animals.
- Neurology, a study of the nerves.
- Nosology, a study of the classification of diseases.
- Odontonosology, a study of the diseases of the teeth.
- Organology, a study of the organs of the body.
- Orismology, a study or explanation of technical terms of any science.
- Osteology, a study of the bony system.
- Otology, a study of the ear.
- Phlebology, a study of the veins.
- Physiology, a study of the laws of life and functions of living beings.
- Pathology, a study of disease.
- Psychology, a study of mental philosophy.
- Pyretology, a study of fevers.
- Semeiology, a study of the symptoms, or signs of disease.
- Skeletology, a study of solid parts of body.
- Somatology, a study of anatomy.

Spasmology, a study of convulsions.

Sphygmology, a study of the pulse.

Stomatology, a study of the mouth.

Symptomatology, a study of symptoms.

Syndesmology, a study of ligaments.

Technology, a study or explanation of terms and phrases belonging to the arts.

Teratology, a study of malformations and monsters.

Threpsology, a study of doctrine of nutrition.

Toxicology, a study of poisons.

Zoonosology, a study of diseases of animals.

Zymology, a study of fermentation.

W.

What Is the Explanation?

The following special notice came to hand from Iowa a few days ago. It is a "*rare bit*." Such statements in regard to prices as is here given always bear evidence of deception, and a total lack of the "*esprit de corps*" that is an inherent quality of every truly professional man.

The aim and effort of every one should be to enlarge the sphere of his usefulness by extending his experience, increasing his skill, and serving those who come into his charge better and better as day by day he goes on in his professional career. The dentist who puts his skill, professional ability, and aspirations on a mercantile—barter—level with corn, potatoes, and poultry certainly is not entitled to much rank as a professional man—indeed, he does not deserve any rank at all. No one who voluntarily depreciates, or lowers the value of his service, is likely to make progress—on the other hand he is sure to retrograde. This will occur in spite of any resolution he may make to the contrary.

"I will give three years warrantee on all classes of work."

What folly. As well might the physician give a guarantee on the health of his patient. Such promises are always indicative of gross ignorance, or fraud. Note further: "I have had most fourteen years of heavy practice since leaving the Dental

College at Ann Arbor, Mich., and feel competent that I can render you honest work."

Can any thing be more incongruous than this talk about honesty when the facts are that the statement in the quotation just given is absolutely false in every aspect? This person is not a graduate of the dental college at Ann Arbor, was never a member of its freshman class, and even so far as is known, never made a visit to the college.

Now Mr. G. H. Ellis (D.D.S.?) if you have any reasonable explanation to make of the statement contained in this card, send it on, and none will be more gratified than the writer of this criticism, to make correction, and if the explanation is a good vindication it shall have as wide a circulation as this may have, but put it in good English. It is not often that one man gets a whole page of advertising in the REGISTER free, but we always feel so affable and pleasant after receiving such cards (and they come frequently) that the impulse is to do something for somebody—some kind act, or give some good advice. Don't do it again; stick to the truth if it kills you; but it won't.

But lest the reader wearies here is the card:

DENTISTRY.

As it has been most two years since I located in Maxwell, and the public have so liberally patronized me, I thought in as much as prices in farm produce were so low, I would for this summer put my prices as follows: Full upper and lower set of teeth on rubber base, \$16.00. Either upper or lower set on silver, \$12.00, on gold, \$25.00. Filling, enameling, 50 cents. Gold and Platinum, 75 cents. Malgam, 50 cents. All Gold \$1.25, to \$2.00. Extracting reasonable. I will give three years warranty on all classes of work. I have had most fourteen years of heavy practice since leaving the Dental college at Ann Harbor, Mich., and feel competent that I can render you honest work.

G. H. Ellis, D.D.S.

Maxwell, Iowa.

How to Clean a Mixing-Slab.

One of two methods may be pursued to clean a mixing-slab for cements.

Peroxide of Hyrdogen, a few drops, allowed to remain on the slab will in a short time render cleaning the surplus cement off easy.

Another way is to use strong aqua ammonia which will also readily break up the mass of cement.

From these two practical points we might draw lessons. Peroxide of oxygen should not be used more than necessary in the mouth near oxy-phosphate fillings. We infer that it is not the sulphuric acid in the peroxide that does the damage but the chemical affinity of the oxygen for the phosphoric acid. Then again the air we breath may contain ammonia, which as we have shown is a solvant of the oxy-phosphate, but according to Grouven, for every 100 lbs. body weight, an adult man expires in the twenty-four hours about 3.9 grains, and a boy about 6.2 grains ammonia. According to Lossen, however, the average in twenty-four hours for an adult is 0.014 grain (0.22 grain). From this we see that young individuals produce more ammonia than old and small proportionately more than large animals. This may be suggestive of other ideas.

W.

FOR LOCAL ANÆSTHESIA.—At the Philadelphia Hospital, local anæsthesia for minor operations is obtained by combining ten parts of chloroform, fifteen of ether, and one part of menthol, and using the mixture in a hand atomizer. After one minute's application of the spray, such a degree of anæsthesia is produced that incisions can be made for the removal of growths, opening a felon or an abscess, without causing pain.

IN the May Number of the REGISTER will be given a list of the graduates from the various Dental Colleges of this country, so far at least as the commencements may have taken place. Probably a larger number of graduates, in the aggregate, than in any former year; and next year will probably show a still larger number.

T.

Recurring Luxation of the Lower Jaw.

At the Academy of Medicine, New York, they have discovered that luxation of the jaw may occur from more than one cause. At a meeting of the section on surgery, "Dr. W. R. Townsend presented a woman fifty-three years of age, who had been much troubled by recurring dislocation of the lower jaw since about five years ago, when a dentist used some force in taking a cast of the upper jaw. She could now keep the jaws in normal apposition only by holding the mouth shut, and during sleep the lower jaw would slip forward." (*Medical Record*).

Force in taking an upper impression causing dislocation of the lower jaw, *nonsense!* Any student of anatomy knows that any amount of force upon the upper jaw can not dislocate it from the lower. We have heard of dislocation occurring from taking an impression of the upper jaw but it was not caused by unnecessary force, it occurred the same way that another woman's jaw was dislocated, by simply gapping, *i. e.* opening the mouth too wide.

We fail to see where the force would come in in taking an upper impressison. W.

The diplomas granted by the Royal College of Surgeons of Dublin are: Fellow and licentiate, also licentiate in dental surgery. The former two are full surgical diplomas and entitle their possessor to practice in Great Britain, while the latter is the regular dental qualification which, with two similar ones in Scotland and one in Canada, constitute the only dental qualifications granted in the kingdom. Harvard and Michigan dental degrees are the only registrable diplomas in dentistry.

One of Ann Arbor's graduates has been appointed to a professorship in Heidleburg University. This is the first instance of such an honor being bestowed on an American student.

The above from a Chicago paper is not in exact accordance with the facts. It is pretty well understood, all round in this vicinity, that Dr. W. D. Miller, who is also a graduate of the

University of Michigan, is and has been for several years a professor in the University of Berlin; and in addition to this the world knows that Dr. Miller has done something since he has occupied that position that commands universal admiration, and places him as an investigator before the scientific world without an equal in his special line.

ON the 10th of March the building occupied by the Buffalo Dental Manufacturing Company was destroyed by fire. The large number of standard and useful articles supplied to the profession by this old reliable concern, entitle it to the sincere sympathy of every dentist whose labor has been made easier or more efficient, because of the ingenuity and enterprise it has always manifested. We are pleased to learn that the old Company has been re-organized and will continue the business with new and improved facilities; and the continuation of Dr. Theo. G. Lewis and Col. John E. Robie, with the new organization will assure the profession that no backward step is contemplated.

THE *Dental Review's* New York correspondent objects to editor Hungerford's criticism of his "unclosing laudation" of certain prominent members of the profession in the east. We don't object to his laudation of any one in particular or in general either, but we would enjoy his letters more if his subject matter was more systematically treated, and his personal and general allusions were not so localized as to be destitute of sense or interest to us western folks. There are several exceedingly interesting matters though in his letter in the March *Review*, for which we are duely grateful, so much so, that we think it desirable to give them in condensed form to our readers.

DR. MAIN the 5th Avenue dentist says he has had an average annual income of \$20,000 from his practice for twenty years, why can't he help Bodecker build the Academy of Dentistry?

OUR correspondent closes with an exhortation to young men to take their places in the work of dental society, dental journalism &c, and not defer this duty from fear of adverse criticism, which is often only commendation with desire that the strength of the young man's mental ability may be developed. We hope our venerable correspondent (for we find our friend was practicing dentistry before we were born and contributed an article to the *Cosmos* when we were only four years old, although the first number of the *Cosmos* was not printed until a year later) will take kindly our criticism, for we really enjoy his letters and we know the time and effort he may put into them is not wasted, and we are sure editor Harlan will not shut off so interesting a writer.

It is contrary to the code of ethics of the American Dental Association, and consequently of all delegate dental societies, to give a public testimonial or indorsement to a patented or secret nostrum, amalgam or anything that may be used to the commercial advantage of its owner; thus rendering the practice of giving testimonials unprofessional and disreputable. How far then must the moral sentiment be bent to allow the editor to accept a free copy of a book, an instrument, or any commercial commodity in exchange for a favorable review or comment which will be used to encourage traffic and financially benefit the owner? Does it not need considerable assurance, for the publisher of a book or even a professional journal, to ask gratuitously an indorsement of which is to be used as an advertisement? Such things are done.

DR. W. C. BARRET has procured and sold to the New York Odontological Society, a complete collection of skulls, representing all mammalia and fishes having teeth. Truly a valuable and instructive collection, such as every dental school should possess. For the present this collection will be housed in the new and magnificent building of the New York Academy of Medicine, where it will probably remain until the Bodecker Academy of Dentistry shall have been built.

SPEAKING OF ASSURANCE, does it not seem as though it was a little too much to have the editor of a professional journal soliciting practitioners, scientific workers, teachers, editors, &c., to give within the limits of a postal card, methods of treatment, or opinions on subjects that are already exhaustively treated in text books or professional literature? It takes time and brains to condense into the limits of a postal card, what would require several pages to give an intelligible and helpful answer to some of these questions, and we don't think even an editor has any business to ask such favors even for the good of the profession, without due compensation. It seems to us a better way would be to employ a capable man to search out replies to these questions from articles contributed to the journals and from reliable text books, quoting and giving due credit. This would accomplish the purpose without imposing upon the good nature of busy people.

ONE MORE, a certain extensively circulated dental journal has a habit of copying an article from a journal published twenty to thirty years ago, giving due credit to the author who always is one of our distinguished men, but giving no credit to the journal from which the article is taken or the date; thus doing an injustice to the author whose views of the subject may have changed, because of more recent investigations in science or practice; and imposing upon the younger members of the profession the antiquated ideas and views of men whose thoughts they are accustomed to consider valuable, and worthy of imitation. This isn't enterprise or journalism, it is a bad practice and should not be tolerated.

THE *Dental Review* is authority for the statement that a man named Emanuel, and a lawyer by profession, living at Aiken, South Carolina, has discovered a process by which he can separate aluminum from the native clay of his country at an expense of only two dollars and fifty cents per ton. If this thing keeps on some one will have to turn his attention toward the problem of preventing the transformation of the earth into aluminum. H.

THE NEW YORK DENTAL COLLEGE is to have a new home, having purchased one for \$106,000. We are truly glad of this, for the old building must have been totally incapable of properly housing and instructing the large classes that have gathered within its walls during the last four or five years.

DR. ASHLEY FAUGHT has made an ingenious device for heating and packing gutta-percha without injuring it by overheating. Dr. C. M. Richmond has invented an apparatus for obtunding purposes, involving the principle of the application of medicated steam spray to the part to be obtunded.

OBITUARY.

The Death of Dr. C. R. Coffin.

In the death of Dr. C. R. Coffin, of South Kensington, on the 29th of December last, at the age of sixty-five, the profession has lost a valuable worker. Although Dr. Coffin has for several years taken no active part in professional affairs his work and its results still linger in the thoughts of many. A quiet, unobtrusive, but keenly observant and appreciative mind is an adornment, but is not too common. Dr. Coffin will be remembered alike for the purely technical work with which his name is associated, as well as for the earnestness with which he took up and worked in the interest of the British Dental Association. Dr. Coffin was born and educated in the United States, studying his profession at Boston, and obtaining his qualification at Baltimore College in 1853. In 1855 he came to England, at first practicing for a few years in Manchester, and subsequently in London. As is well-known Dr. Coffin made some interesting experiments on the properties of gold foil in removing the excess of mercury from amalgam fillings.—*Dental Record*.

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COMMUNICATIONS.

Scientific Investigations of the Cranium and Jaws.

BY EUGENE S. TALBOT, M.D., D.D.S.

Read before the Mississippi Valley Dental Association, March 11, 1891.

In a hurried manner I have sketched a few ideas as they have occurred to me in regard to the forthcoming investigation of the jaws of modern and prehistoric skulls. At the last meeting of the American Dental Association, Dr. J. J. R. Patrick of Belleville, Ill., was appointed to take direct supervision of the work of the examination of the jaws and teeth of the skulls in the different museums of this country. The Association could not have selected a better man. It is quite essential that some one who has had years of practical training like Dr. Patrick in this particular line of work should not only supervise but actually make the examination. From the experience which I have had in the past ten years, in making examination of the work for data that are not so particular or difficult, I have learned, that it is very essential that the work should be done by a man or a set of men of experience and that they should go through all of the museums and superintend personally all the work. These men should be men of experience and integrity whose names connected with any paper would be sufficient guarantee of the accuracy and completeness of the investigation.

I can not see how it is possible for even one individual to go on with the work until some clear and systematic plan has been devised as a foundation to work upon. This plan can not be successfully laid out by any one, or ten individuals, for the

reason that no individual is able to grasp all the points that are liable to arise in a complete scientific research. This argument is illustrated by the remarks made by Dr. Patrick, showing that even he, with his large fund of knowledge and personal experience, is liable to be misled by some personal view in regard to this matter. Among other things he says on page 70 of the Transactions of the Illinois State Dental Society for 1890: "I received some casts of the superior maxilla, a full set of teeth, and the writer desired to know the measurement of some of my prehistoric skulls, that is, the transverse diameter of the dental arch in the region of the sixth year molars. So far as race characteristics are concerned there can be no object in such an investigation. And so with the depth of the palate, etc.; all these measurements are futile for a number of reasons which it would be occupying too much time to consider." Now, while these measurements may not be of any value so far as race characteristics are concerned, (which I will not admit), yet it is just as essential that a very accurate measurement should be made across the upper jaw in the region of the first permanent molar as any other examination of the mouth or jaw.

It is barely possible that Dr. Patrick has certain reasons for thinking that these measurements are not necessary and yet it is possible that some one might require these particular measurements in the near future and find upon examination of the report that they had not been taken, thus necessitating the work of going all over the ground again. This state of things has already occurred in the very laborious and exhaustive report of Dr. Betty. After Dr. Patrick has received suggestions from the dentists, he should compare them with his own views and then publish his chart in the leading dental journals at intervals, for some time, inviting criticisms in the journals from the dentists so that these criticisms may be read by all. In this way the views of those interested in the original investigations can be recorded. The suggestions that are of value can be added to the chart and such points as are not of material use can be discarded. In this manner a tolerable accurate chart may be produced.

All the measurements across the superior maxilla up to the

time of Dr. Betty's examination, were made from first molar to first molar. What motive could have induced Dr. Betty to make a change and measure from third molar to third molar I can not understand, although he may possess good and sufficient reasons for so doing. I shall have occasion to use the measurement from first molar to first molar in a paper I have been collecting material for, during the past ten years. I congratulate myself that a large expenditure of time and money was saved by the work already done by Dr. Betty. I now find that unless he can show that his plan of measurement is the better one, I must go all over the work again thus causing considerable annoyance to the officers of the museum. Years ago the late Dr. John Mummery recognized the fact that the only parts giving a true and accurate development of the jaw was at the anterior root of the first permanent molar and this is very natural. The first permanent molars are the only teeth that erupt normally and are not influenced by the other teeth. They are the teeth by which most of the work of mastication is accomplished and therefore the jaw is better developed at that point; the roots of the teeth give a very accurate point by which to obtain the diameter of the jaw, while on the other hand the third molars never erupt normally, they are creatures of circumstances, sometimes erupting outside of the alveolar process, sometimes inside, again in the centre of the process, being always at the mercy of the second molar teeth.

The third molar always erupts after the jaw has developed while the first permanent molar erupts before the development of the alveolar process and is carried undisturbed laterally with it. Again, the alveolar process at the extremities is always influenced by the surrounding parts, the divergence of the wisdom on the lower jaw, the tongue and the cheeks, while the first permanent molars are always held in position by each other. Frequently one wisdom tooth or both are missing and in that case it would be impossible to get the measurement. Some one will say that this is the case with the first permanent molar: so it is, but the second molar in that case will answer the purpose if it moves forward and fills the space made vacant by the ex-

traction of the first permanent molar, when a nearly accurate measurement is as readily obtained; the buccal roots of this tooth giving the precise diameter of the jaw at the time the measurement is taken. The diameter of the jaw at the location of the second molar, when all are in place, is greater than the diameter at the first permanent molar, so that if the first molar should be removed the second molar coming forward will occupy about the same position in the jaw that the first molar did.

I consider the antero-posterior diameter of as much importance as the lateral diameter provided a large collection can be made so as to obtain the average excessive and arrested development, and the premature extraction of teeth goes far toward interfering with the true character of the jaw. The forward movement of the teeth as a result of the above mentioned causes is bound to effect a true solution of race characteristics. Prognathism of either the upper or lower jaw frequently results from abnormal development of the opposite jaw, resulting in a local cause. Again the constant extraction of the first permanent molar or want of eruption of the third molar would preclude any attempt on the part of the investigator to make an accurate investigation.

As Dr. Owen is able to classify some of the lower animals by the antero-posterior diameter of the jaw, so may we with proper measurement, be able to add materially to our knowledge of races by this means. Dr. Patrick also says on same page: "With regard to measurements of human crania. This has puzzled the brain and ingenuity of physiognomists and craniologists for the last 150 years. They have arrived at no reliable data in regard to the relative size of the cranium and face bones. Measurements of crania amount to comparatively nothing as designating brain capacity or race."

I quite agree with the doctor so far as the measurements of the cranium are concerned, but should we, as dentists, (specialists) who are supposed to be familiar with the bones of the cranium, become so narrow in our investigations as to confine ourselves in a scientific study of so much importance as this is, to nothing but the teeth? I had always supposed from his writings that Dr.

Patrick was a broad-gauged scientific investigator, not only in craniology but also in osteology, and that he, above all others, with his vast knowledge of craniology, would for his own benefit, if not for the general public, wish to explore the whole field and show to all scientists that this commission appointed by the representative body of dentists, was able to place new facts and new data before the world so that physiognomists and craniologists the world over can look upon the report of the committee as not only final, but display such a fund of information that the scholars of all countries will look upon it as a piece of masterly work. That physiognomists and craniologists have not made headway in the past 150 years is true. And why have they not made headway? Simply because the starting points for the measurements were not accurate to commence with. For instance, take the facial angle.

Different authors possessed different notions in regard to what the facial angle should consist of. In Camper's angle the facial line is drawn between the most prominent points of the forehead and lower face, the basal line from the center of the external auditory meatus through the anterior nasal spine to meet the first. In Cuvier's angle, the two lines start from the same point to meet at the tip of the incisors; in Cloquet's, at the center of the superior alveolar border; in Jacquart's, at the anterior nasal spine.

The Munich-Frankfort angle (adopted at the craniometrical congress at Frankfort) takes the facial line between the supraciliary depression and the most prominent part of the alveolar border of the superior maxillary; the basal line is the so-called horizontal line drawn between the upper border of the external auditory meatus and the lower border of the orbit.

Topinard's angle has a facial line drawn from the supraciliary depression to the most prominent part of the lower face, and a basal line in the plane tangent to the occipital condyles and the upper alveolar arch. It will be noticed that most of these authors take for their starting point the external auditory meatus, drawing a line to the nasal spine, and yet all are at variance in regard to what the other points shall be. It seems

never to have occurred to these men that the bones of the body never develop in harmony with the opposite sides or that the bones of one individual may not develop like those of another individual. I have seen people with one ear higher than the other—others with eyes higher or lower in the head than normal, or one eye higher in the head than the other; others have jaws either anterior or posterior to the normal position. The same is also true of the nasal spine. We frequently observe the nasal bone projecting or receding owing to the period of development and ossification of the bones at the base of the brain. How frequently we see excessive development and a want of development of the supraciliary ridges, as well as the anterior alveolar processes. A line extending two to four inches from any one of these points would necessarily make a vast difference in the shape of the calvarium.

It is a singular fact that less is known of the development of the osseous system than any other part of the body. In my investigations upon this subject I had occasion to go through the Army Medical Library at Washington and the only mention of this subject in any language consisted of twenty-four cases of excessive or arrested development, in connection with patients who were otherwise deformed; these were only mentioned in a general way. A small work upon this subject has been published lately by Dr. Sutton, an English author. It is very elementary although exceedingly interesting.

Dr. Patrick also says: "I care not what race of people you might come in contact with, however isolated in any island in the ocean, you could not find eight crania but would be different in shape and size from each other." In this statement, Dr. Patrick is quite correct.

One of the most complete, scientific and well-classified museums in Europe is that located at Wiesbaden, Germany; each room is numbered according to a special period in the world's history and anything of interest that could be obtained in relation to that particular period has been placed in that room in the natural position in which they were found. The first room contains relics pertaining to the Glacial period and bronze ages.

Among other things side by side are two skulls, one Brachycephalic, the other just the opposite, Dolichocephalic, thus showing that from the earliest man the shapes of the head differed.

Pages could be written about these two skulls alone. I have always observed that in the brachycephalic skull the upper jaw like the skull is always broad, as in the form of the jaw of the Chinese; while the dolichocephalic skull has a long, narrow jaw as observed in the negro. Notwithstanding all these differences in points of measurements, a good deal has been accomplished by craniologists. There is no class of men so capable of working out a new system of measurement of the skulls and establishing definite points as the dentists, and the present opportunity is one that seldom comes to a man whereby he can make a name for himself. It only requires thought, inventive skill and well-directed efforts to study out a plan which shall be superior to all others for the accurate measurements of the cranium and jaws.

Another point in Dr. Betty's paper. Dr. Black on page 75 of the Transactions of the Illinois State Dental Society, says: "I have not counted the irregularities in the individual skull, but in 150 Mound Builders there are 45 cases of irregularity or 30 per cent.; in 145 Indians, 16 cases of irregularity or 11 per cent." It is very essential for us to know whether these cases are the result of local causes or whether they are of constitutional origin. I have since gone over the tables of Dr. Betty and have found that only three can be considered constitutional—that is, irregularity resulting from arrest of development of the jaw. All the others are of local origin. I doubt if there is any other point in the whole investigation that is of more importance to us or to future investigators than the knowledge of excessive or arrested development of the jaws. We would expect to find more local irregularities of the teeth among early races than among the present people, because at that time the knowledge of the care of the teeth was limited, and the temporary teeth which were allowed to remain in the mouth until forced out by the second set, frequently caused the second set to rotate or to be forced out of their normal condition. Another point is as to whether a skull is that of a male or female. Dr. Patrick says: "There

is no male or female skull." In this I think he intends to say that it is quite difficult to distinguish a male from a female skull. That there is quite a difference in size and shape every one will admit.

Let me ask what will all the investigation amount to if, after the committee finishes its work, it is unable to classify the skulls into male and female. The influences which produce decay of the teeth are not the same in the male and female. The jaws are smaller in the female than in the male. The diameters of the cranium, the weight of the brain, are known to be less in the female than in the male, and I should expect to find a difference in the shape of the jaws if a close inspection were made. It is known that the sutures of the female skull are more prominent than those of the male. The discovery of these points by some dentist whereby he can easily determine the sex will certainly add credit to his name.

Phagocytosis in Dental Lesions.

BY F. W. SAGE, D.D.S., CINCINNATI, O.

Read before the Mississippi Valley Dental Society, held at Cincinnati, March, 1891.

It is the object of this paper to review somewhat in detail two papers published in the January number of the *Dental Advertiser*, the titles of which are "Phagocytosis," and "The Mechanism of Infection," the authors respectively being Dr. Frank W. Low, of Buffalo, N. Y., and Dr. Bouchard, of Paris.

Phagocytosis is fully defined by Dr. Low; without presuming too much on our hearers not having read the article referred to, we venture to present in the briefest terms his definition. A "phagocyte," then, is a cell, which possesses the power in a greater or less degree of appropriating and devouring solid particles. He names five tissues in which these phagocytes or amœboid cells abound; as we shall have in this paper to consider more particularly the invasions of the pyogenic microbe, we shall here name one only--the white corpuscles of blood and mucus.

Phagocytosis is, then, according to the definition, and for our present purpose, an exhibition (in that interesting phenomenon commonly known as suppuration) of the battle going on between the powers that waste and the forces that tend to prevent waste of tissue. The microbe is the invader, seeking to break down and lay waste; the phagocyte is the watch dog seeking to destroy the invader.

Notwithstanding Dr. Low's admirable presentation of the details of various experiments made by way of attesting the truth of a theory he advances, he seems to the writer to have fallen short of what he has attempted. He says:

"Where teeth on the one hand remain in the jaw after treatment, they shortly become, apparently, perfectly healthy, (a condition that could not obtain so long as pyogenic micro-organisms were present in the tissue); on the other hand, those having been first extracted and then experimentally treated, have almost, if not quite, invariably developed bacteria cultures. Having in mind these facts, but one inference is rationally to be drawn, namely, that the phagocyte cell acts as the factor of elimination, devouring all bacteria, both in the pulp canal and in the tissue about the apex of the root." And then after calling attention to Dr. Miller's assurance of the inadequacy of any and all agents at present employed, to effect a perfectly aseptic condition of tooth-roots, and having also directed attention to the success attending the sole use of dry hot air and simple mechanical cleansing of the roots before filling, he adduces the following experiment: an upper molar, having putrescent pulp canals, was extracted, suitable precaution being at once taken against the possible ingress of pathogenic microbes, after which the pulp chamber and canals were carefully treated by the "immediate root process" (I quote his words). The roots were then split open and immersed in agar-agar. Almost immediately, the anterior buccal root, which he states *had not been filled*, yielded a colony of cocci. The filled roots however gave no such result.

The writer admits his inability to see that this experiment illustrates the truth of Dr. Low's statement already quoted, that teeth having been *first* extracted and *then* experimentally treated,

have almost if not quite, invariably, developed bacteria cultures. The result of the experiment seems to establish the exact opposite fact. It is, however, a matter of no little moment that if the "immediate treatment process" employed (again I quote his words) was according to the method of using simply dry hot air and mechanical cleansing, to which he referred, the success of the method of procedure seems well enough established.

It is unfortunate that Dr. Low does not explicitly state what he meant by the "immediate treatment process"; still, in view of what he has said of the success of the "dry air and mechanical cleansing process," it seems reasonably safe to assume that he used no medicaments. And yet in view of what we shall presently attempt to consider, it is not essential to our purpose that we shall insist on the assumption that he used no medicaments. The result is in any event interesting as indicating the fact that whatever disturbances may follow the "immediate root" process we should direct attention to the apical space.

Dr. Low has distinctly declared that no cultures developed in the two filled roots. Again referring back to his statement that "the phagocyte cell acts as the factor of elimination, devouring all bacteria both in the pulp canal and in the tissues about the apex of the root," we say that the result of his experiment seems to plainly indicate that in the case of the unfilled root this inhibitory action had not taken place. It is not then unreasonable to assume that neither had it taken place in the other two roots so successfully filled.

We point out the significant results of his experiment, not in any spirit of cavil: the valuable results incidentally shown—of the "immediate root process"—are of sufficient interest to us, for present consideration, and call for an expression of gratitude to be tendered Dr. Low. It is worthy of passing comment, at least, that this single experiment of Dr. Low's seems to refute Dr. Miller's statement that "beyond all doubt none of the agents now employed to bring about a perfect aseptic condition of tooth roots, are equal to the emergency." The context shows that Dr. Low recognized the full significance of the experiment in this particular respect. It would seem that Dr. Miller did not have

in mind dry hot air and mechanical cleansing, if we are right in assuming that upon them alone Dr. Low relied in his experiment.

We find on following Dr. Low, further on, that he assumes that his readers must regard with incredulity the idea of the phagocyte's penetrating the dentinal tubules, or even the foramen of the pulp canal. Why he should assume such incredulity we are at a loss to understand, unless it be as regards the dentinal tubules only, for it seems to be implied in the quotation which we are about to give, that the phagocyte is capable of reaching any point to which the blood has access. We again quote: "The writer would venture the opinion that when stasis is complete, the battle goes against the phagocyte, because reinforcements can no longer come to the rescue, while the bacteria proliferate without further hindrance, receiving new colonies with the impactment of each morsel of decomposing vegetable or animal matter that lodges in the cavity of decay."

Leaving at this point the special consideration of Dr. Low's paper, and preserving in mind only the fact which he seems to have demonstrated that roots may be at once rendered aseptic by simple means, we find before us a field for interesting speculation as to what takes place in the "always present abscess"* at the apex of the tooth or beyond that point, after the filling has been inserted. At the risk of rehearsing what is already trite, the writer refers to a time when the most heroic treatment for alveolar abscess was the only kind of treatment to which any reference whatever was made, by at least one author whose work is to-day in the hands of every dental student. That was the total eradication of the abscess by an operation directed through the alveolar wall. About seven years ago the writer of this had suggested to him—through his observation of the result of empirical practice on his part and on the part of other practitioners—the feasibility and the expediency of filling diseased roots after cleansing and disinfecting merely, and oftentimes without attempting to reach the abscess. That is to say, he discovered

* Dr. Flagg.

that in the cases of individuals of certain temperaments, no unpleasant reaction followed this modified course of treatment. In view of the latest discoveries in bacteriology, it will be seen that this was a leap in the dark. At this day, in the light of recent revelations whereby we are enabled to identify and classify not only the various pathogenic microbes, but also their several foes lying in wait to guard the tissues against their inroads, we seem almost to have reached a stage when it shall be possible to define such hitherto vague terms, as diathesis, vital resistive force, and *vis medicatrix naturæ*. The florid complexion, red hair, bulbulous nose, of the individual of an inflammatory diathesis, seems already to suggest something better than the vague term "predisposition;" it calls for the identification of the special microbe producing the specific disease, and at the same time leads us to the naming of the particular phagocyte, the absence of which allows of the proliferation of the mischief-breeding microbe.

It is interesting to recall various small items which a few years ago were significant as *causes* of inflammation, although they fell short of supplying in explicit terms the why and the wherefore of their being causes. There was the "infected broach," which being inserted into the root canal, provoked the quiescent abscess to renewed activity, or, on the assurance that the broach used had been carefully sterilized, irritation was attributed to the forcing through the foramen of effete matter already contained in the root. No one seems to have discovered a solution of what was, after all, a mystery attending this matter, notwithstanding Lister long ago dropped a hint which might have been appropriated by the dental profession, in a suggestion made that the lance should be applied to abscesses in the soft tissues, only after having drawn the integument obliquely aside, so that on its return after being released, the air might be excluded. In view of what Dr. Bouchard has to say regarding the phagocyte and the bactericidal condition, it will not be difficult to account for the fact that the infected broach, in the hands of the most reckless operator, does not invariably excite inflammation. For an explanation of this we refer the author to his admirable paper.

But to return to the inquiry, "What takes place beyond the

apex after the root has been filled?" To discuss this question exhaustively would take more time than the writer feels is properly allotted to him; he will, therefore, call attention to only a few features of what seems reasonably well established. We are continually tempted to turn aside, lured by the curious use of terms in vogue only a decade ago—"laudable pus," "decomposition of pus recurring in secondary inflammation," and so on.

But to resume: the treatment of alveolar abscess in years past has been founded on a principle of reasoning from effect to cause, without an intelligent apprehension of the nature of either the effect or the cause. We argued the necessity of stopping the root canal after a course of treatment in order to obliterate, or do away, with a reservoir into which fluids might seep, there to decompose and "react" upon the parts beyond. The condition thus brought about was one in which, in popular parlance, the lymphatics could have an opportunity to control, absorb, or what not, the seeping fluids. In all this there was no recognition of what Dr. Bouchard terms the bactericidal condition, accessory to the aggressive function of that microbe destroyer, the phagocyte. We knew that through the use of medicaments we could induce, sooner or later, a condition in the abscess, of tolerance, which we recognize as a restoration of the balance between the so-called vital resistive force and the disease-breeding agents. But that this was a chemical condition slowly brought about, through which microbes of infection were destroyed, we had no suspicion. We viewed the recurrence of swelling in the gum months and even years after our treatment of roots, noting the absence of pain, but being unable to account for that fact. There the microbes, according to Dr. Bouchard's theory, were again at work, but with weakened functions, owing to the fact of their having to contend with the vaccine elements of other colonies of microbes once occupants of the field. Here again we recall a principle laid down in works on surgery: "That a part once inflamed becomes weakened, inviting a recurrence of inflammation on the slightest exposure to the causes of inflammation." The recurring inflammation may be persistent, but it is of the low grade indicated by the word "chronic." The microbe is per-

sistent because through the prevention of vascular dilatation, exudation and diapedesis the phagocyte is afforded no opportunity to combat him. At the same time, as Dr. Bouchard affirms, the microbe's functions are embarrassed from the fact that while on the one hand it secretes noxious elements favorable to its own development, it also secretes these vaccine elements before referred to, the protective influence of which presently begins to be manifested.

In this desultory way we believe we have gone over the principal ground of research in what most concerns us as dentists to know, as regards the action of microbes in alveolar abscess at least.

The abscess then, unless extirpated by a heroic operation, usually remains in a quiescent state, subject to the influence of after-inflammation.

Why Copper Amalgam Sometimes Wastes in the Mouth.

BY W. B. AMES, D.D.S., CHICAGO, ILL.

Read before the Mississippi Valley Dental Society, at Cincinnati, March, 1891.

Inasmuch as many of us have for several years been endeavoring to attain to some definite knowledge of the physical properties and peculiarities of amalgamated copper, and as my convictions derived from an experience of ten years in the use, and four years in the manufacture of the material are somewhat at variance with those of some gentlemen who have written and spoken on the subject, I have concluded to bring it before this society for consideration.

The most serious shortcoming that has been urged against copper amalgam as an offset to its many valuable characteristics, is the tendency in many cases to waste or cup out, and it has seemed to many to be a sufficiently serious objection to cause its abandonment, or to make it necessary to first make a test filling to discover whether the use of this material was warranted in the mouth of the patient in hand. My faith in the material has

never been shattered, for the reason that, although some of my most conscientious efforts in the making and use of it have resulted in more or less dismal failure, I have had the conviction that the difficulty was to be attributed to the faulty processes and methods of making and using rather than to inseparable peculiarities. This conviction was backed by having used some time since a quantity of copper amalgam called Sullivan's, made for the Dental Mfg. Co., London, which differs materially from the "Sullivan's" furnished by Ash & Sons. This amalgam I found to stand in mouths in which all other preparations of the kind would waste to a greater or less extent, and furnished me the incentive to labor toward ascertaining the cause of the lack of stability of other copper amalgams. That the wasting was most serious in what is termed acid mouths was not a very tangible clue to start upon, yet it was most natural to consider first what solvents of the constituents of copper amalgams we might naturally have within the mouth. It would be unreasonable to suppose that there was ever a condition of the saliva sufficiently acid to dissolve copper and mercury to the extent that we often see, unless the action was in some way intensified, as these metals are only soluble in nitric acid and the more powerfully nitromuriatic, unless the less energetic acids be used in connection with a galvanic couplet, *i. e.*, as the fluid of a battery of which one of these metals is the positive element or as the electrolyte with one of the metals in question as the anode. In the case of copper there might be a very slight wasting from oxidation and sulphuretting of the surface, these compounds being either dissolved or worn from the surface so that there might be a continual reformation, but in the case of the mercury which is the metal which is supposed to be presented upon the surface, there could be no such wasting, as it does not oxidize under the conditions present, and the sulphuret which is the compound formed in a cold state, would be a very tenacious and insoluble film. The black film which the fillings take on, which do not show any evidence of wear is undoubtedly the black sulphuret of mercury—that being the compound that is formed when mercury and sulphur are brought together in the cold state.

The only tangible clue to the solution of copper amalgam in the mouth seems to be the fact that outside of the mouth the galvanic current would cause the solution of its components in the weak acids, and the phenomena observed in the mouth, in the more rapid wasting of those fillings which were so placed as to form the positive element of a battery, the negative element of which was an adjoining or occluding gold filling or crown.

Starting with this as a clue, it was natural to take notice of the fact that many of the copper amalgams when made at all dry presented the appearance of being composed of copper amalgam and free copper, the surface showing in some specimens almost a copper-colored surface, and it was most natural to question whether or not this free copper was the positive element and the amalgamated portion the negative element of a galvanic battery when placed in the fluids of some mouths. This would readily account for the entire phenomena, for it would be analogous to the solution of impure, unamalgamated zinc in dilute sulphuric acid where the same zinc with an amalgamated surface is not dissolved. Upon treating with a solution of mercurious nitrate amalgams containing free copper, it was found that the nature of the material was radically changed, a much more thorough amalgamation being brought about, and with it much better results being obtained in the mouth.

Now, what is the cause of this free copper in copper amalgam? With that of my own manufacture it was largely due to an extensive grinding of the amalgamated copper crystals in a mill devised for the purpose, with a view of giving it smoothness and a more desirable plasticity. It has been the general opinion, I think, that copper amalgam could not be triturated too extensively by the manufacturer or by the dentist at the time of using. In several published descriptions of methods of producing the material great stress has been placed on the heating and rubbing down, and repeating this, until sufficient mercury had been worked out and smoothness obtained. On account of results observed in using amalgam made by myself by a large variety of processes, decided some time since that all, or any grinding was bad for the material, and that the only heat that it should have,

was that given to it by the dentist at the time of its preparation for the filling. When the amalgamation of the copper is obtained by precipitating it upon the surface of a mass of mercury by the use of electricity, as I originally made the material, the first crystallization takes place with a large surplus of mercury, so that heat is absolutely necessary to put it in marketable condition, and unless the copper has been precipitated in a uniformly fine state the grinding must be resorted to, whereas, if the copper is precipitated upon some other than a mercury surface and the amalgamation of a proper quantity effected by the use of proper chemicals, the excess of mercury can be worked out and the material put into marketable condition without heat and without grinding. That heating, and especially repeated heating, is bad for copper amalgam where the very best results are required is unquestionable, as the 250° F. that is required to break up the crystals and set mercury free, is sufficient to volatilize the mercury to a very perceptible extent, as can be seen by holding a piece of gold over the amalgam during the process. While I do not consider careful heating to be as injurious as the extensive trituration that has been so generally advised, I think that it is well to use only fresh amalgam in such cases as we have reason to fear that wasting might take place.

With copper amalgam in which the copper precipitate has been carefully amalgamated, and the amalgamation has not been disturbed by heat or grinding, we have a material that will have permanency and stability in the most acid mouth.

Where a filling has wasted, it has in nearly all cases a surface to which fresh amalgam will readily attach, so that these fillings can be easily filled out, and if this is done with an amalgam that has the proper stability, the filling is practically as good as if the wasting had not taken place.

DISCUSSION.

The discussion of Dr. Ames' paper was opened by Dr. L. E. Custer, Dayton, O.

The general explanation of the cause of the waste of amalgamated copper fillings has been that it was due to an acid condition of the saliva—that saliva of an acid reaction would dissolve

these fillings. 1st. If the saliva is acid of sufficient strength to dissolve the copper, or mercury of a copper amalgam filling, it would not only attack the enamel of the teeth but it would, in like manner act upon the silver, tin, zinc, platinum or gold, or whatever metals may compose an ordinary alloyed amalgam filling, some of which are more easily soluble than copper. A common amalgam filling does not disappear from this cause. 2nd. If copper amalgam fillings are dissolved by acid they should waste pretty equally all over their surface, which in all cases they do not. 3rd. Some copper amalgam fillings waste while others in the same mouth do not. This would not occur if it is due to an acid saliva. 4th. If copper amalgam is susceptible at all to the action of acids, as solvents, they should waste between the teeth where acids, the product of fermentation of food particles, are generated. And finally, copper amalgams sometimes waste in an alkaline saliva as well as one of acid reaction.

The fact is, gentlemen, that saliva of an acid reaction is not the direct cause of the waste of copper amalgam fillings, but is simply a condition which favors the waste of certain kinds of copper amalgams which characterized the first attempts at its manufacture in this country. Because the waste of some copper amalgams occurred in an acid saliva, it is no proof that this fluid is a solvent; but by this coincidence we are led to the belief that there is in some way a connection between the two.

In order to understand what this relation is we must go down to first principles, as in the paper just read. We must first know what copper amalgam is; what changes it is likely to undergo in the mouth, and under what conditions it would most likely lose substance.

This material consists of copper particles in a fine state of division whose surfaces are more or less amalgamated. If this amalgamation is perfect there will be no copper surface exposed at all, yet if one of these particles be broken in two its whole inside will present a clean copper surface. We must understand that there is no fusion of one metal into the other. In a filling these metals are like the bricks and mortar of a house. The mer-

cury is represented by the mortar and the copper particles by the bricks.

Whether these copper particles are entirely amalgamated or only partially so is a very important thing to be taken into consideration. A second consideration is in regard to the proportion of mercury. There may be simply enough to thoroughly amalgamate the copper particles or there may be enough to float them about. A third consideration is in regard to the manner in which it is handled by the operator preparatory to filling.

These conditions are in regard to the material itself. But there are two other factors which come from without which must be considered; these are the saliva and attrition. All these conditions and influences must be borne in mind before we can approach the question at hand.

You are aware that we have been using a great variety of copper amalgams, all of which have given different results. Copper is a metal very difficult to amalgamate, and there is no less than four different methods of producing amalgamation, each of which produces a different article. Then again, after the copper is amalgamated every manufacturer does not extract the same amount of mercury and also every operator manipulates in a different manner preparatory to filling. The first copper amalgam made in this country was by the mercuric nitrate method and by precipitating with iron or zinc. This was often contaminated with other metals. It was coarse; not well amalgamated, often contained twice the necessary amount of mercury and was used with about as much wisdom and discretion as though it were hot mush, and no wonder the cry went up from Brooklyn that there would be a grand howl some day. The use of these different materials in the same mouths would give different results. And to go into the detail of the different materials and the different conditions and influences would require too much time; however, we may consider the effect of perfect amalgamation and its opposite, and the quantity of mercury upon the waste of this material under an alkaline or acid saliva and attrition.

A perfectly amalgamated filling presents as stated in the paper a pure mercury surface to the action of the saliva and attrition.

Saliva of an alkaline reaction would have no effect upon mercury, neither would it if it were acid of the strength found in the mouth since mercury is dissolved most easily only by strong nitric acid. The effect of attrition upon such a filling would probably be to dislodge the amalgamated copper particles. But since perfectly amalgamated copper can scarcely be touched by a file this too must be excluded. Therefore, if a perfectly amalgamated copper filling always presents a clean mercury surface it would stand in an acid mouth and under attrition. According to the paper mercury forms a salt in the mouth—the sulphuret—which, as Dr. Ames says, is insoluble, so this would not be effected by the saliva. But if this salt should be easily dislodged there would be a continual reformation at the expense of the filling, and such a one would waste when exposed to attrition. But as stated in the paper this forms a tenacious film. So we must agree with the conclusions arrived at by the author that a perfectly amalgamated copper filling properly used will not waste. If during the finishing of the filling at the second sitting the unamalgamated centres of the copper particles on the surface of the filling are exposed, in an acid saliva these would probably waste by the galvanic solution and the process will stop when these are dissolved; but if in an alkaline saliva, salts would form, these would be removed by attrition again and again until all those exposed particles have been converted into salts and removed.

A poorly amalgamated filling presents copper and mercury areas on the exposed surface of the filling. If the copper has not been fully amalgamated before filling it is hardly probable that it will become so afterwards, so that these two metals will remain separate and subject to the action of the saliva and attrition. On general principles we would exclude an alkaline saliva as having any effect upon copper. But if in an alkaline saliva the two should form salts and these are exposed to attrition it would depend entirely upon how strongly these are attached or whether these are insoluble, whether the filling wastes or not. The copper salts we know can even be removed with a tooth brush so that when such a force as attrition plays upon the filling these salts are sure to be removed, and the repeated loss and reforma-

tion of salts at the expense of the filling accounts for their waste in this position. Then the copper salts, and especially the sulphuret, are soluble in water so that they may be dissolved as fast as formed.

When we subject a poorly amalgamated filling to an acid saliva we have a very different result. We have all heard this paper which treated of such conditions. Where formerly the waste of such a filling was supposed to be due to chemical solution by an acid saliva, Dr. Ames explains this very satisfactorily as being due to galvanic solution. It will not be necessary to go into this any further than to add what he possibly intentionally omitted, and that is, that it is not necessary that a fluid be strongly acid to produce galvanism, so a saliva which simply has this reaction is capable of producing the phenomenon. Wherever this local galvanic action is going on the surfaces are fresh, which accounts for the bright appearance and which led to the former belief that it was chemical action rather than galvanic. In receding positions, if these poorly amalgamated surfaces should become protected by the formation of insoluble salts, the galvanic solution ceases at that point.

The proportion of mercury is an important consideration, and especially where the filling is to be subjected to the force of mastication. When the amalgamated copper particles touch one another on all sides and the inequalities are filled with mercury, I think we have the best material, and according as the proportion of the mercury is increased and the copper particles are separated from one another, will the strength be lessened and it will lose substance when exposed to attrition. The first amalgams made, contained a large amount of mercury and their waste in exposed positions was largely due to this fact.

It would be interesting to go into the therapeutics of the copper and mercury salts. If it is true, as stated in the paper, that those fillings do not waste from mercury salts, what will become of our beautiful theory of the effect of copper salts, unless those of mercury are soluble; for how can an insoluble salt be antiseptic? All these would be interesting, but are not in place here.

The practical points to be derived are these: Poorly amalgamated fillings should not be used in acid mouths, or in alkaline ones when exposed to attrition, but perfectly amalgamated fillings with no excess of mercury and properly manipulated, may be used in all positions and conditions of saliva and not waste.

Dr. J. S. Cassidy, Covington, Ky., attributes the wasting to imperfect amalgamation and perhaps galvanic action, there being no chemical union of the metals entering into the composition of the amalgam.

Dr. E. G. Betty, suggests finishing such fillings at times of insertion and not to touch them afterward. It has been his experience that if copper amalgam is washed with a nitrate of mercury solution before insertion and the filling subsequently turns black, it will wear well.

Dr. C. M. Wright, thinks copper amalgam the most uncertain of any of the filling materials that we possess. That while its antiseptic properties are perhaps beneficial, many of the difficulties of manipulation must be corrected to make it a success as a filling material.

Dr. J. Taft: Does not all the difficulty come from the feeble affinity of the two materials for each other? Is anything to be gained in the use of copper amalgam over ordinary amalgams? The materials in these have a strong affinity for each other while the affinity in copper amalgam is feeble, What more can we expect than the formation of salts and cupping of the filling? Until this affinity can somehow be increased it seems to me of but little value as a filling material.

Dr. W. B. Ames, Chicago, said he never had placed much dependence upon the antiseptic action of copper amalgam, for where there is no waste of the filling, the color of the filling next to the dentine remains light colored, while that in fillings that wash, is dark. Unless the antiseptic salts, indicated by the dark color, are formed we get no antiseptic action; so in fillings that do not waste there would be no antisepsis. He did not think the affinity in copper amalgam was so feeble as Dr. Taft supposes. While the copper is not permeated by mercury it is strongly coated with it and would require more heat than that in the mouth to dislodge the particles.

The Relations of Bacteria to Practical Surgery.

BY JOHN B. ROBERTS, M.D.

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The revolution which has occurred in practical surgery since the discovery of the relation of micro-organisms to the complications occurring in wounds has caused me to take up this subject for discussion. Although many of my hearers are familiar with the germ theory of disease, it is possible that it may interest some to have put before them, in a short address, a few points in bacteriology, which are of value to the practical surgeon.

It must be remembered that groups of symptoms which were formerly classed under the heads of "inflammatory fever," "symptomatic fever," "traumatic fever," "hectic fever," and similar terms, varying in name with the surgeon using them, or with the location of the disease, are now known to be due to the invasion of the wound by microscopic plants. These bacteria, after entering the blood current at the wound, multiply with such prodigious rapidity that the whole system gives evidence of their existence. Suppuration of wounds is undoubtedly due to these organisms, as is tubercular disease, whether of a surgical or medical character. Tetanus, erysipelas and many other surgical conditions have been almost proved to be the result of infection by similar microscopic plants, which, though acting in the same way, have various forms and life-histories.

A distinction must be made between the "yeast plants," one of which produces thrush, and the "mould plants," the existence of which as parasites in the skin gives rise to certain cutaneous diseases. These two classes of vegetable parasites are foreign to the present topic, which is surgery; and I shall, therefore, confine my remarks to that groupe of vegetable parasites to which the term bacteria has been given. These are the micro-organisms whose actions and methods of growth particularly concern the surgeon. The individual plants are so minute that it takes in the neighborhood of ten or fifteen hundred of them grouped to-

gether to cover a spot as large as the full stop or period used in punctuating an ordinary newspaper. This rough estimate applies to the globular or egg-shaped bacteria to which is given the name "coccus" (plural cocci). The cane, or rod-shaped bacteria are rather large plants. Fifteen hundred of these placed end to end would reach across the head of a pin. Because of the resemblance of these latter to a walking stick they have been termed bacillus (plural bacilli).

The bacteria most interesting to the surgeon belong to the cocci and the bacilli. There are other forms which bacteriologists have dubbed with similar descriptive names, but they are more interesting to the physician than to the surgeon. Many micro-organisms, whether cocci, bacilli, or of other shapes, are harmless; hence they are called non-pathogenic, to distinguish them from the disease-producing, or pathogenic germs.

As many trees have the same shape and a similar method of growing, but bear different fruit; in the one case edible, and in the other poisonous—so, too, bacteria may look alike to the microscopist's eye, and grow much in the same way, but one will cause no disease, while the other will produce serious disease, such, perhaps, as tuberculosis of the lungs or brain.

Many scores of bacteria have been by patient study, differentiated from their fellows and given distinctive names. Their nomenclature corresponds in classification and arrangement with the nomenclature adopted in different departments of botany. Thus, we have the pus-causing chain coccus (*streptococcus pyogenes*), so called because it is globular in shape; because it grows with the individual plants attached to each other, or arranged in a row like a chain of beads upon a string; and because it produces pus. In a similar way we have the pus-causing grape-coccus of a golden color (*staphylococcus pyogenes aureus*). It produces pus, grows with the individual plants arranged somewhat after the manner of a bunch of grapes, and when millions of them are collected together the mass has a golden yellow hue. Again, we have the bacillus tuberculosis; the rod-shaped plant which is known to cause tuberculosis of the lungs, joints, brain, etc.

It is hardly astonishing that these fruitful sources of disease

have so long remained undetected, when their microscopic size is borne in mind. That some of them do cause disease is undisputed, since bacteriologists have, by their watchful and careful methods, separated a single plant from its surroundings and congeners, planted it free from all contamination and observed it produce an infinitesimal brood of its own kind. Animals and patients inoculated with the plants thus cultivated have rapidly become subjects of the special disease which the particular plant was supposed to produce.

The difficulty of such investigations becomes apparent when it is remembered that under the microscope many of these forms of vegetable life are identical in appearance, and it is only by observing their growth, when in proper soil, that they can be distinguished from each other. In certain cases it is quite difficult to distinguish them by their physical appearances produced during their growth. In such instances it is only after an animal has been inoculated with them that the individual parasite can be accurately recognized and called by name. It is known by the results it is capable of producing.

The various forms of bacteria are recognized, as I have said, by their method of growth, and by their shape. Another means of recognition is their individual peculiarity of taking certain dyes so that special plants can be recognized, under the microscope, by the color given to them, which they refuse to give up when treated with chemical substances which remove the stains from, or bleach, all the other tissues which at first have been similarly stained.

The similarity between bacteria and the ordinary plants with which florists are familiar is indeed remarkable. Bacteria grow in animal and other albuminous fluids, as a soil, but it is just as essential for them to have a suitable soil as it is for the corn or wheat that the farmer plants in his field. By altering the character of the albuminous fluid in which the micro-organism finds its subsistence, these small plants can be given a vigorous growth or may be actually starved to death. The farmer knows that it is impossible for him to grow the same crop year after year in the same field, and he is, therefore, compelled to rotate

his crops. So it is with these microscopic plants which we are considering. After a time the culture fluid or soil becomes so exhausted of its needed constituents by the immense number of plants living in it that it is unfit for their life and development. Then this particular plant will no longer thrive, but some other form of bacterium may find in it the properties required for functional activity, and grow vigorously. It is probable that exhaustion or absence of proper soil is an important agent in protecting man from sickness due to infection from bacteria. The ever present bacteria often gains access to man's blood through external wounds, or through the lungs and digestive tracts; but unless a soil suited for their development is found in his fluids, the plants will not grow. If they do not grow and increase in numbers they can do little harm.

Again, there are certain bacteria which are so antagonistic to each other that it is impossible to make them grow in company, or to co-exist in the blood of the same individual. For example, an animal inoculated with erysipelas germs cannot be successfully inoculated immediately afterward with the germs of malignant pustule. Such antagonism is illustrated by the impossibility of having a good crop of grain in a field overrun with daisies. On the other hand, however, there are some micro-organisms which flourish luxuriantly when planted together in the same fluid, somewhat after the manner of pumpkins and Indian corn growing between the same fence rails. Others seem unwilling to grow alone, and only flourish when planted along with some other germs. It is very evident, therefore, that bacteriology is a branch of botany, and that Nature shows the same tendencies in these minute plants as it does in the larger vegetable world visible to our unaided eyes.

As the horticulturist is able to alter the character of his plants by changing the circumstances under which they live, so can the bacteriologist change the vital processes and activities of bacteria by chemical and other manipulations of the culture substances in which the organisms grow. The power of bacteria to cause pathological changes thus may be weakened and attenuated; in other words, their functional power for evil is taken from them by

alterations in the soil. The pathogenic, or disease-producing power, may be increased by similar, though not identical, alterations. The rapidity of their multiplication may be accelerated, or they may be compelled to lie dormant and inactive for a time; and on the other hand, by exhausting the constituents of the soil upon which they depend for life, they may be killed.

It is a most curious fact also that it is possible, by selecting and cultivating only the lighter colored specimens of a certain purple bacterium, for the bacteriologist to finally obtain a plant which is nearly white, but which has the essential characteristics of the original purple fungus. In this we see the same power which the florist has to alter the color of the petals of his flowers by various methods of selective breeding.

The destruction of bacteria by means of heat and antiseptics is the essence of modern surgery. It is, then, by preventing access of these parasitic plants to the human organism (aseptic surgery) or the destruction of them by chemical agents and heat (antiseptic surgery), that we are enabled to invade, by operative attacks, regions of the body which a few years ago were sacred.

When the disease-producing bacteria gain access to the tissues and blood of human and other animals by means of wounds, or through an inflamed pulmonary or alimentary mucous membrane, they produce pathological effects provided there is not sufficient resistance and health power in the animal's tissues to successfully antagonize the deleterious influence of the invading parasitic fungus. It is the rapid multiplication of the germs, which furnishes a continuous irritation, that enables them to have such a disastrous effect upon the tissues of the animal. If the tissues had only the original dose of microbes to deal with, the warfare between health and disease would be less uncertain in outcome. Victory would usually be on the side of the tissues and health.

The immediate cause of the pathogenic influence is probably the chemical excretions which are given out by these microscopic germs. All plants and animals require a certain number of substances to be taken into their organisms for preservation of their vital activities. After these substances have been utilized there

occurs an excretion of other chemical products. It is probably the excretions from the many millions of bacteria circulating in the blood which give rise to the disease characteristic of the fungus with which the animal has been infected. The condition called saparæmia, or septic intoxication, for example, is undoubtedly due to the entrance of the excretory products (ptomaines) of putrefaction-bacteria into the circulation. This can be proved by injecting into an animal a small portion of these products obtained from cultures of the germs of putrefaction. Characteristic symptoms will at once be exhibited.

Septicæmia is a similar condition due to the presence of the putrefactive organisms themselves, and hence of their products or ptomaines also in the blood. The rapidity of their multiplication in this albuminous soil, and the great amount of excretion from the numerous fungi, makes the condition more serious than sapræmia. Clinically, the two conditions occur together.

The rapidity with which the symptoms may arise after inoculation of small wounds with a very few germs will be apparent when it is stated that one parasitic plant of this kind may, by its rapidity of multiplication, give rise to fifteen or sixteen million individuals within twenty-four hours. The enormous increase which takes place within three or four days is almost incalculable. It has been estimated that a certain bacillus only about 1-1000 of an inch in length could, under favorable conditions, develop a brood of progeny in less than four days which would make a mass of fungi sufficient to fill all the oceans of the world if they all had a depth of one mile.

Bacteria are present everywhere. They exist in the water, earth, air, and within our respiratory and digestive tracts. Our skin is covered with millions of them, as is every article about us. They can circulate in the lymph and blood, and reach every tissue and part of our organisms by passing through the walls of the capillaries. Fortunately, they require certain conditions of temperature, moisture, air and organic food for existence, and for the preservation of their vital activities.

If their surroundings are too hot, too cold, or too dry, or if they are not supplied with a proper quantity or quality of food from

the soil in which they are living, the bacterium becomes inactive, until the surrounding circumstances change, or die absolutely. The spores which finally become full-fledged bacteria, are able to stand a more unfavorable environment than the adult bacteria. Many spores and adults, however, perish. Each kind of bacterium requires its own special environment to permit it to grow and flourish. The frequency with which an unfavorable combination of circumstances occurs limits greatly the disease-producing power of the pathogenic bacteria.

Many bacteria, moreover, are harmless and do not produce disease even when present in the blood and tissues. Besides this the white blood cells are perpetually waging war against the bacteria in our bodies. They take the bacteria into their interiors and render them harmless by eating them up, so to speak; and they crowd together and form a wall of white blood cells around the place where the bacteria entered the tissues, thus forming a barrier to cut off the blood supply to the germs and perhaps to prevent them from entering the general blood current.

The war between the white blood cells and bacteria is a bitter one. Many bacteria are killed; but, on the other hand, the life of many blood cells is sacrificed by the bacteria poisoning them with ptomaines. The tissue cells, if healthy, offer great resistance to the attacks of the army of bacteria. Hence, if the white cells are vigorous and abundant at the site of the battle, defeat may come to the bacteria, and the patient suffers nothing from the attempt of these vegetable parasites to harm him. If, on the other hand, the tissues have a low resistive power, because of the general debility of the patient, or of a local debility of the tissues themselves, and the white cells be weakened and not abundant, the bacteria will gain the victory, get access to the general blood current and invade every portion of the animal's body. Thus, a general, or a local disease, will be caused; varying with the species of bacteria with which the patient has been infected, and the degree of resistance on the part of the tissues.

From what has been stated, it must be evident that the bacterial origin of disease depends upon the presence of a disease-producing fungus and a diminution of the normal or healthy tissue

resistance to bacterial invasion. If there is no fungus present, the disease caused by such fungus cannot develop. If the fungus be present and the normal or health tissue-resistance be *undiminished*, it is probable that disease will not occur. As soon, however, as overwork, injury of a mechanical kind, or any other cause diminishes the local or the general resistance of the tissues and individual, the bacteria have the upper hand, and are able to produce their malign effect.

Many conditions favor the bacterial attack. The patient's tissue may have an inherited peculiarity, which renders it easy for the bacteria to find a good soil for development; an old injury or inflammation may render the tissues less resistant than usual; the point at which inoculation has occurred may have certain anatomical peculiarities which make it a good place in which bacteria may multiply; the blood may have undergone certain chemical changes which render it better soil than usual for the rapid growth of these parasitic plants.

The number of bacteria originally present makes a difference also. It is readily understood that the tissues and white blood cells would find it more difficult to repel the invasion of an army of a million microbes, than the attack of a squad of ten similar fungi. I have said that the experimenter can weaken and augment the virulence of bacteria by manipulating their surroundings in the laboratory. It is probable that such a change occurs in nature. If so, some bacteria are more virulent than others of the same species; some less virulent. A few of the less virulent disposition, would be more readily killed by the white cells and tissues than would a larger number of more virulent ones. At other times the danger from microbic infection is greater because there are two species introduced at the same time; and these two multiply more vigorously when together than when separated. They are, in fact, two allied hosts trying to destroy the blood cells and tissues. This occurs, for instance, when the bacteria of putrefaction and the bacteria of suppuration are introduced into the tissues at the same time. The former causes sapræmia and septicæmia, the latter cause suppuration. The bacteria of tuberculosis are said to act more viciously if accompanied by the

bacteria of putrefaction. Osteomyelitis is of greater severity, it is believed, if due to a mixed infection with both the white and the golden grape-coccus of suppuration.

I have previously mentioned that the bacteria of malignant pustule are powerless to do harm when the germs of erysipelas are present in the tissues and blood. This is an example of the way in which one species of bacteria may actually aid the white cells, or leucocytes, and the tissues in repelling an invasion of disease-producing microbes.

Having occupied a portion of the time allotted to me in giving a crude and hurried account of the characteristics of bacteria, let me discuss the relations of bacteria to the diseases most frequently met with by the surgeon.

Mechanical irritations produce a very temporary and slight inflammation, which rapidly subsides; because of the tendency of nature to restore the parts to health. Even severe injuries, therefore, will soon become healed and cured, if no germs enter the wound.

Suppuration of operative and accidental wounds was, until recently, supposed to be essential. We now know, however, that wounds will not suppurate if kept perfectly free from one of the dozen forms of bacteria that are known to give rise to the formation of pus.

The doctrine of present surgical pathology is that suppuration will not take place, if pus-forming bacteria are kept out of the wound, which will then heal by first intention without inflammation and without "inflammatory" fever.

In making this statement I am not aware that there is a certain amount of fever following various severe wounds within twenty-four hours, even when no suppuration occurs. This wound-fever, however, is transitory, not high, and entirely different from the prolonged condition of high temperature formerly observed nearly always after operations and injuries. The occurrence of this inflammatory, traumatic, surgical, or symptomatic fever, as it was formerly called, means that the patient has been subjected to the poisonous influence of putrefactive or suppurative germs.

We now know why it is that certain cases of suppuration are not circumscribed but diffused, so that the pus dissects up the fascias and muscles, and destroys with great rapidity the cellular tissue. This form of suppuration is due to a particular form of bacteria called the pus-forming "chain-coccus." Circumscribed abscesses, however, are due to one or more of the other pus-causing micro-organisms.

How much more intelligent is this explanation than the old one that diffuse abscesses depended upon some curious characteristic of the patient. It is a satisfaction to know that the two forms of abscess differ because they are the result of inoculation with different germs. It is practically a fact that wherever there is found a diffuse abscess there will be discovered the streptococcus pyogenes, which is the name of the chain-coccus above mentioned.

So also is it easy now to understand the formation of what the old surgeons called "cold abscess," and to account for the difference in appearance of its puriform secretion from the pus of acute abscess. Careful search in the fluid coming from such cold abscesses reveals the presence of the bacillus of tuberculosis and proves that a cold abscess is not a true abscess, but a local lesion of the tubercular infection. Easy is it now to understand the similarity between the "cold abscess" of the cervical region and the "cold abscess" of the lung in a phthisical patient. Both of them are, in fact, simply the result of invasion of the tissues with the ubiquitous tubercle bacillus; and are not due to pus-forming bacteria.

Formerly it was common to speak of the scrofulous diathesis, and attempts were made to describe the characteristic appearance of the skin and hair pertaining to persons supposed to be of scrofulous tendencies. The attempt was unsuccessful and unsatisfactory. The reason is now clear because it is known that the brunette or blonde, old or young, may become infected with the tubercle bacillus. Since the condition depends upon whether one or other becomes infected with the ever present bacillus of tubercle, it is evident that there can be no distinctive diathesis.

It is more than probable that the cutaneous disease so long

described as *lupus vulgaris* is simply a tubercular condition of the skin, and not a special disease of unknown causation.

The metastatic abscesses of pyæmia are clearly explained when the surgeon remembers that they are simply due to a softened blood clot, containing pus-forming germs, being carried through the circulation and lodged in some of the small capillaries.

A patient suffering with numerous boils upon his skin has often been a puzzle to his physician, who has in vain attempted to find some cause for the trouble in his general health alone. Had he known that every boil owed its origin to pus bacteria which had infected a sweat gland or hair follicle, the treatment would probably have been more efficacious. The suppuration is due to pus-germs, either lodged upon the surface of the skin from the exterior, or deposited from the current of blood by which they have been carried to the spot.

I have not taken time to go into a discussion of the methods by which the relationship of micro-organisms to surgical affections has been established; but the absolute necessity for every surgeon to be fully alive to the inestimable value of aseptic and antiseptic surgery had led me to make the foregoing statements as a sort of resume of the relation of the germ theory of disease to surgical practice. It is clearly the duty of every man who attempts to practice surgery to prevent, by every means in his power, the access of germs, whether of suppuration, putrefaction, erysipelas, tubercle, tetanus or any other disease to the wounds or body of a patient. This as we all know, can be done by absolute bacteriological cleanliness. It is best, however, not to rely solely upon absolute cleanliness, which is almost unattainable; but to secure further protection by the use of antiseptic solutions. I am fully of the opinion that chemical antiseptics would be needless, if absolute freedom from germs was easily obtained. When I know that even such an enthusiast as I, myself, is continually liable to forget or neglect some step in this direction, I feel that the additional security of chemical antiseptics is of great value. It is difficult to convince the majority of physicians, and even ourselves, that to touch during an operation a finger to a door knob, to an assistant's clothing, or to one's own body may be to vitiate

the entire operation by introducing one or two microbic germs into the wound.

An illustration of how careful the various steps of an operation should be guarded is afforded by the appended rules, which I have adopted at the Woman's Hospital of Philadelphia for the guidance of assistants and nurses. If such rules were taught every medical student and every physician entering practice as earnestly as the paragraphs of the catechism are taught the Sunday School pupil (and they certainly ought to be so taught) the occurrence of suppuration, hectic fever, septicæmia, pyæmia and surgical erysipelas would be practically unknown. Death then would seldom occur after surgical operations except from hæmorrhage, shock or exhaustion.

With this feeble plea, Mr. President and Members of the Society, I hope to create a realization of the necessity for knowledge and interest in the direction of bacteriology, for this is the foundation of Modern Surgery. There is, unfortunately, a good deal of abdominal work done under the name of antiseptic and aseptic surgery, because the simplest facts of bacteriology are unknown to the operator. I have taken the liberty of bringing here a number of culture tubes containing beautiful specimens of some of the more common and interesting bacteria. The slimy masses seen on the surface of the jelly, contained in the tubes, are many millions of individual plants, which have aggregated themselves in various forms, as they have been developed as the progeny of the parent cells planted in the jelly as a nutrient medium or soil.

An Eye to Business.

A certain doctor, who was noted for a keen eye to business, was driving along the street of a country town, when his horse took fright and ran away. He was thrown violently out of his trap and rendered senseless. Presently he recovered a little from his unconsciousness, and, noticing the crowd which had gathered about him, asked, "What's the matter, gentlemen? Anybody hurt? I am Dr. B——. Can I be of any service?"

PROCEEDINGS.

The Forty-Seventh Annual Meeting of the Mississippi Valley Association of Dental Surgeons.

CINCINNATI, OHIO, March 10th, 11th and 12th.

The Association met in Lincoln Club Hall, corner Eighth and Race streets, Tuesday morning March 12th, 1891, with President, Dr. M. H. Fletcher, of Cincinnati, Ohio, in the Chair.

Prayer was offered by Dr. James Leslie, of Cincinnati, Ohio.

The minutes of the previous meeting were read and approved.

Dr. J. R. Callahan, Chairman of the Executive Committee, reported that the result of the work of the Committee was represented in the programme for the meeting, that the plan adopted at the last meeting, of appointing members of the Executive Committee from each of the large cities of the Mississippi Valley seemed to be a good one, and, that as a rule, each member had done good work for the meeting, and this was especially so in regard to Dr. M. Stout, the member from Chicago.

The Committee on membership was called and reported that up to the present time no names had been proposed for membership.

Dr. Frank Hunter, Treasurer, reported the balance on hand to be \$118.34.

On motion of Dr. H. A. Smith, Dr. J. J. R. Patrick, of Belleville, Ill., was to be given the privilege of the floor when he was ready to speak upon the subject of the Examination of Crania.

On motion of Dr. J. Taft, 10:30 on Wednesday was the hour set apart for the hearing of Dr. E. S. Talbot's paper, and two o'clock the same day, the hour for Dr. B. M. Rickett's paper.

The President appointed the following committees on Necrology: Dr's J. Taft, F. W. Sage, and H. T. Smith.

Upon motion, two o'clock in the afternoon was the hour set apart for hearing Dr. F. W. Sage's paper and the discussion of Dr. Fletcher's paper.

Dr. J. W. Jay, of Richmond, Ind., made some interesting remarks upon the subject of "Dentistry Thirty Years Ago and Now," followed by Dr. James Leslie, on the same subject.

On motion, the Association adjourned, to meet at two o'clock in the afternoon.

AFTERNOON SESSION, TUESDAY, MARCH 10TH, 1891.

Association met, with Dr. M. H. Fletcher in the Chair.

On motion, the portion of Dr. Fletcher's paper, relating to treatment of teeth was re-read, and this was followed by Dr. F. W. Sage's paper "Phagocytosis in Dental Lesions." The two papers were then considered and discussed together by Dr.'s J. Taft, C. M. Wright, H. A. Smith, Frank Hunter, C. P. Gray, G. S. Junkerman. Dr. Dennis, Dr. J. R. Callahan, J. W. Jay and M. H. Fletcher.

On motion, the subject was passed, and the paper, "Why Copper Amalgam Sometimes Washes in the Mouth," was read by Dr. W. B. Ames, of Chicago, Ill.

On motion, the Association adjourned. The discussion of Dr. Ames' paper was made the first subject for Wednesday morning.

SESSION OF WEDNESDAY MORNING, MARCH 11TH, 1891.

Association met, with President M. H. Fletcher in the Chair.

The discussion of Dr. Ames' paper was opened by Dr. L. E. Custer, of Dayton, Ohio, followed by Drs. J. S. Cassidy, E. G. Betty, C. M. Wright, J. Taft, James Leslie and H. A. Smith, who presented for examination some amalgam crowns, contours made by Dr. Arkovoy, of Budapest, Hungary.

On motion of Dr. J. Taft, Dr.'s J. J. R. Patrick, of Belleville, Ill., and E. S. Talbot, of Chicago, were unanimously elected honorary members of the Association.

Dr. E. S. Talbot, of Chicago, read a paper, "Scientific Investigation of the Jaws and Teeth." The discussion was opened by Dr. J. J. R. Patrick.

At the hour of the adjournment, it was moved that the Association adjourn and the discussion of Dr. Talbot's paper be made the first order for afternoon session, passed and Association adjourned.

AFTERNOON SESSION, WEDNESDAY, MARCH 11TH, 1891.

Association met at two o'clock, with President M. H. Fletcher in the Chair.

The Committee on membership presented the following names:

Dr. S. M. Cummings, of Elkhart, Ind.; Dr. J. F. Buxbaum, of Cincinnati; Dr. W. T. McLean, of Cincinnati.

On motion, they were elected to membership, by suspension of the rules and cast of the Secretary's ballot.

Dr. B. M. Ricketts, of Cincinnati, read a paper, "Surgery of the Cleft Palate."

Discussion was opened by Dr. Wm. Knight, followed by Drs. J. J. R. Patrick, E. S. Talbot, H. A. Smith, J. Taft and G. Mollyneaux, who presented for examination specimens illustrating the mechanical treatment of Cleft Palate.

On motion of Dr. H. A. Smith, the hearty thanks of the Association were tendered Dr. Ricketts for the excellent paper and the able manner of presenting the subject of "Surgery of the Cleft Palate."

Upon motion, the subject was passed and the discussion of Dr. Talbot's paper resumed by Drs. E. G. Betty, H. A. Smith and J. J. R. Patrick.

Upon motion, the subject was passed and Association adjourned, to meet Thursday morning.

SESSION, THURSDAY MORNING, MARCH 13TH, 1891.

Association met, with the President, Dr. Fletcher, in the Chair.

Minutes of the previous session were read and approved.

Bills to the amount of \$——, were presented, approved and ordered paid.

Dr. J. I. Taylor, made the following motion: "That the Association endorse the amendment Dental Bill (House Bill, No. ——), now before the Ohio Legislature, and that a statement to this effect be telegraphed to Hon. Mr. McMaken, at Columbus, Ohio, passed.

On motion, 10:30 was the hour set apart for the election of officers.

The election of officers resulted as follows :

President, Dr. L. E. Custer, of Dayton, Ohio.

First Vice-President, Dr. O. N. Heise, of Cincinnati, Ohio.

Second Vice-President, Dr. Jessie Dillon, of Cincinnati, Ohio.

Corresponding Secretary, H. C. Matlack, of Covington, Ky.

Recording Secretary, Dr. H. T. Smith, of Cincinnati, Ohio.

Treasurer, Dr. F. A. Hunter, of Cincinnati, Ohio.

EXECUTIVE COMMITTEE.

Dr. J. R. Callahan, Cincinnati, Ohio.

Dr. O. N. Heise, Cincinnati, Ohio.

Dr. J. S. Cassidy, Covington, Ky.

Dr. Henry Barnes, Cleveland, Ohio.

Dr. L. P. Bethel, Kent, Ohio.

Dr. Wm. Conrad, St. Louis, Mo.

Dr. A. W. Harlan, Chicago, Ill.

Dr. B. O. Doyle, Louisville, Ky.

Dr. A. F. Emminger, Columbus, Ohio.

Dr. C. E. Miles, Columbus, Ohio.

PUBLICATION COMMITTEE.

Dr. L. P. Bethel, W. H. Sillito, Dr. F. W. Sage.

COMMITTEE ON MEMBERSHIP.

Drs. C. M. Wright, G. Mollyneaux, R. I. Taylor.

COMMITTEE ON ETHICS.

Drs. H. A. Smith, J. S. Cassidy, J. Taft.

H. T. SMITH, Recording Secretary,

Peroxide of Hydrogen.

In a paper read at the International Medical Congress at Berlin, Dr. Paul Gibier closes with the following suggestions concerning Peroxide of Hydrogen :

1. This chemical seems to have no injurious effect on animal cells.
2. It has a very energetic destructive action upon vegetable cells—microbes.
3. It has no toxic properties and is harmless when given by the mouth.

COMMENCEMENTS.

The American College of Dental Surgery, Chicago. Commencement.

The American College of Dental Surgery Chicago, held its commencement exercises at Central Music Hall March 25th, 1891. Rev. S. M. Crissman led in prayer, and L. D. McIntosh, M.D., D.D.S., president of the college, conferred the degree. The Faculty and students were dressed in caps and gowns, and presented a most imposing scene to the large audience that greeted them. The class were:

NAME.	RESIDENCE.	NAME.	RESIDENCE.
Ernest Phillips Bender.....	Chicago.	F. A. Valentine Moller.....	Denmark.
Thomas Jefferson Randall.....	Tenn.	Hermann Huelsebusch.....	Germany.
William Frackelton.....	Wisconsin.	Ernest Alfred Kohler.....	Chicago.
Sterling Decatur Tuttle, Jr.	Ohio.	Frederick Bruce Cooker.....	Chicago.
Joseph Ephraim Derby.....	Chicago.	John Franklin Kyler.....	Illinois.
Henry Williams McIntire.....	Minn.	Henry Suesskind.....	Chicago.
John Henry Wiede, M.D.....	Germany.	Henry Charles Waaack.....	Illinois.
Mrs. Marie Weihe Wiede.....	Germany.	George Grant Barlow.....	Wisconsin.
Earl Edwin Murdock.....	Wisconsin.	John Frederick Eldred.....	Illinois.
Joseph Sidney Goodmanson.....	Minn.	William F. Gilroy.....	Chicago.
Timothy Rogers.....	Illinois.	William Thomas Jefferson.....	Chicago.
Mrs. Elia A. Magnusson.....	Chicago.	Matthew Kult.....	Wisconsin.
Richard M. McKey.....	Chicago.	Charles H. McCarty.....	Chicago.
Charles Ellsworth Douglas.....	Ohio.	Norris Huston Teal.....	Wisconsin.
Aleck Magnus Swan.....	Chicago.	James Arthur Garland.....	Chicago.
Francis A. Carter.....	Arkansas.	George Augustus Stevenson.....	Indiana.
Frank B. Hinchman.....	Michigan.	H. L. Tilsner.....	Wisconsin.
Charles W. Stanfield.....	Ontario.	Peter Ellsworth Walter.....	Illinois.
Charles E. Ward.....	Chicago.	Frank J. Shea.....	Chicago.
John Wilmot White.....	Chicago.	Miss Annie S. Bowers.....	Chicago.
Frank Reed Howdle.....	Iowa.	Joy L. Frink.....	Iowa.
Francis P. Burchell.....	Iowa.	W. T. Buchanan.....	Illinois.
William Frank Mitchell.....	Illinois.	Charles P. S. Beerend.....	Wisconsin.
William Charles Bruening.....	Germany.	Frank H. Stafford.....	Chicago.
William Farrell Reber.....	Chicago.	Watson Martin.....	Chicago.
HONARA DEGREE.			
Daniel B. Freeman.....	Chicago.	Charles W. Stutenroth.....	South Dakota.

Ohio College of Dental Surgery.

The forty-fifth annual commencement of the Ohio College of Dental Surgery, was held at the Scottish Rite Cathedral, Cincinnati, Ohio, on Wednesday, March 11th, 1891, at 8 o'clock, P. M.

The number of matriculates for the session was two hundred and ten.

The degree of D.D.S. was conferred on the following persons by D. W. Claucey, M.D., D.D.S. :

NAME.	RESIDENCE.	NAME.	RESIDENCE.
Emanuel Joe Abeles	Ohio.	William Stanton Locke.....	Ohio.
Benjamin Erskine Ashby.....	Kentucky.	John Floyd Lockhart, M.D.....	Kentucky.
Travers Barrett.....	Missouri.	Lewis Alfred Long.....	Pennsylvania.
Andrew Hunter Boyd.....	Tennessee.	Cornelius Vanderbilt Mallory.....	Ohio.
William Aristades Burnett.....	Ohio.	John Watson McAbee.....	California.
John Wesley Buzzard.....	Ohio.	Frank M. McCarty.....	Indiana.
Charles Harrison Campbell.....	Ohio.	W. Owen McGaughy.....	Mississippi.
Clinton Emmett Case.....	Indiana.	Edward Alexander Mehaffey.....	Texas.
Jerome Bonaparte Chaffee.....	Missouri.	Edwin Christopher Meyer.....	Indiana.
Frank Riley Chapman.....	Ohio.	George Murray Miller.....	Canada.
John Marcellas Chase.....	Ohio.	Joseph Vincent Miller.....	Wisconsin.
Mrs. Fannie Cooper.....	Kentucky.	Elmer Carlisle Moore.....	Ohio.
Harlan Breckenridge Copsey.....	California.	William Newton Morgan.....	Ohio.
Donald Dean Cornell.....	Iowa.	John Franklin Outcalt.....	Ohio.
Ben Brodie Cory.....	California.	Clark Stephenson Pearce.....	Illinois.
Will McAnney Coryell.....	Indiana.	Frank A. Pfouts.....	Ohio.
Edwin Pierce Cunningham, Jr.....	Ohio.	Joseph Rockwell Price.....	Massachusetts.
Hugh C. Davidson.....	Ohio.	William John Reid.....	Ohio.
Gilbert Wesley DeCamp, Jr.....	Ohio.	Charles Dale Richey.....	Pennsylvania.
Will Herbert Ervin.....	Indiana.	Robert Paul Scudder.....	Ohio.
Frank Eugene Faveret.....	Ohio.	George Marcellus Shafer, M. D.....	Ohio.
Jay Carpenter Foulk.....	Ohio.	Charles L. Slutter.....	Ohio.
Thomas Webster Freeman.....	Canada.	Herold Ellsworth Smith.....	Ohio.
Leander B. Furman.....	Pennsylvania.	Stephen Clyde Smith.....	Indiana.
Charles Herschel Geiger.....	Ohio.	A. Cristie Smyser.....	Ohio.
Joseph William Gercken.....	Ohio.	William Daniel Snyder.....	Ohio.
Harry Stewart Gilson.....	Pennsylvania.	Frank McGee Sparks.....	Indiana.
Edward Crum Grant.....	Ohio.	John Anson Bering Srofe.....	Ohio.
John Henry Hines.....	Ohio.	Edward Russell Stevenson.....	Ohio.
Allen Howe.....	Minnesota.	William W. Tarr.....	Ohio.
Charles Woodward Hubbell.....	Ohio.	Benjamin Cackayne Taylor.....	Ohio.
Elmer Ellsworth Israel.....	Indiana.	Herman B. Van Tres.....	Ohio.
James Warren Jackson.....	Ohio.	Henry Emanuel Weick.....	Ohio.
Harry Joseph Johnson.....	Ohio.	Albert Weiler.....	Ohio.
Lester Hicks Knapp.....	New York.	John Fred. Werner, Jr.....	Michigan.
Albert Amos Kulmer.....	Ohio.	Charles S. Williams.....	Ohio.
Clayton Vincent Lanum.....	Ohio.	Eugene Frank Winchet.....	Ohio.
William Sherman Leeds.....	Indiana.	Total, 75.	

New York College of Dentistry.

The twenty-fifth annual commencement of the New York College of Dentistry, was held in Chickering Hall, New York City, Tuesday evening, March 10th, 1891.

The number of matriculates was two hundred and eighty-two. The degree of D.D.S. was conferred on the following persons by Hon. J. Hampden Robb, President of the Board of Trustees:

Adair, Frank Lincoln.
Adler, Gustav Herman.
Abbanesius, Otto Henry.
Aldred, Oliver Harvy.
Allen, Charles Edward.
Amyot, Bruno Edmund.
Argilagos, Alfred Augustin.
Baker, David Coddington.

Kadelbach, Albert R.
Knapp, James Franklin.
Knight, George Winthrop.
Leverich, Charles Bornman.
Lockwood, Frank Granger.
Luckey, Charles Molton.
Ludlum, Fred. Willett.
McCormic, Samuel George.

Barrett, George Francis.
 Bassett, Charles Gibson.
 Biava, John.
 Bromberg, Bernard Benedict.
 Broughton, John Glover.
 Brown, Mark Hart.
 Bullis, Steward Franklin.
 Burgess, Fred. Lane.
 Byrne, David Walter.
 Bird, Joseph Modesto.
 Bradfield, Thomas Naylor, Jr.
 Cannon, Charles Mousby.
 Chauvet, Joseph Edward.
 Clayton, Walter Hassell.
 Cleveland, Edward Thomas.
 Collett, Frederick George.
 Dickson, James Lenny.
 Douglas, William Henry, M.D.
 Downs, Samuel John.
 Emerson, Charles Howard.
 Fielding, Frank Arthur.
 Fones, Alfred Civilian.
 Garside, William Owen.
 Gilson, Clarence Delbert.
 Graves, Henry Whitmill.
 Guilshan, Henry William.
 Hanks, John Tomlinson.
 Hannemann, F. Theo. A.D., M.D.
 Hardy, James Walter.
 Hart, Morris Philip.
 Hess, Louis.
 Hornug, William Augustus.
 Hough, William Stewart.
 Jacobson, Benjamin.

McNerny, Frederick.
 Mecker, John Burton.
 Merwin, Robert Eugene.
 Messerschmitt, Frederick.
 Minor, Waldo Henry.
 Morhard, Frank Louis.
 Morris, Frank.
 Moss, Alexander Henry.
 Newhall, Channing Angelo.
 Nicholas, Henry Skidmore.
 Norton, Samuel John Leake.
 Ochoa, Raul.
 O'Neill, William Robert.
 Overton, Mordecai Horace.
 Park, William Brush.
 Payne, Winthrop Bryant.
 Perry, Andrew Jackson.
 Pfeiffer, Henry Peter.
 Phillips, Frank Leonard.
 Pomeroy, Irving Herbert.
 Pravost, William Douglas.
 Potter, Louis Edgar.
 Quinlan, Joseph Stanislaus.
 Reeves, George Noakes.
 Rice, Walter Delavan.
 Roche, Thomas Henry, B. S.
 Root, Charles William.
 Root, John Calvin.
 Russell, Samuel Phillips.
 Snedaker, John Frederick.
 Stuki, August George.
 Van Geison, Walter Francis.
 Vernon, Louis Elvin.
 Weinlandt, Francis.

Willis, John Frederick.

Vanderbilt University—Department of Dentistry.

The twelfth annual commencement exercises of the Department of Dentistry of Vanderbilt University was held at Union Chapel, Nashville, Tennessee, March 25th, 1891.

The number of matriculates for the session was one hundred and thirty-five.

The degree of D.D.S. was conferred by W. F. Tillett, Vice-Chancellor, on the following persons:

NAME.	RESIDENCE.	NAME.	RESIDENCE.
R. L. Allen.....	Alabama.	E. F. Hickman.....	Tennessee.
J. D. Adair.....	Alabama.	N. R. Holecomb.....	North Carolina.
Archie Boales.....	Kentucky.	Hamet Jordan.....	Virginia.
R. H. Burks.....	Kentucky.	J. D. Killian.....	Alabama.
David Combs.....	Texas.	R. J. Mills.....	Kentucky.
Wm. Chapman.....	Illinois.	S. J. Martin.....	Kentucky.
Arthur Corbin.....	Michigan.	E. F. Morris.....	Texas.
J. E. Combs.....	California.	J. W. Perkins.....	Alabama.
J. G. Cutliff.....	Georgia.	G. S. Percy.....	Tennessee.
W. W. Corby.....	Alabama.	W. S. Parker.....	Mississippi.
B. S. Davis.....	Mississippi.	C. W. Patterson.....	Mississippi.
B. N. Durpee.....	Alabama.	R. A. Rush.....	Mississippi.
J. A. Dale.....	Indiana.	J. D. Smith.....	Tennessee.
O. C. Delhommer.....	Louisiana.	J. D. Stephens.....	Alabama.
R. D. Griffiths.....	Texas.	W. E. Swind.....	Missouri.
Manuel Garfias.....	Mexico.	B. F. Storne.....	South Carolina.
J. M. Graham.....	Tennessee.	W. L. Smith.....	New York.
G. H. Hudson.....	Alabama.	Thos. Towles.....	Kentucky.
J. H. Hatcher.....	Missouri.	J. W. Thomas.....	Kentucky.
O. P. Hope.....	Missouri.	J. S. Ward.....	Tennessee.
L. T. Hallum.....	Tennessee.	J. P. Williams.....	Georgia.

G. J. Williams, Texas.

Philadelphia Dental College.

The twenty-eighth annual commencement of the Philadelphia Dental College, was held at the Academy of Music Thursday, February 26th, 1891, at 8 P. M.

The number matriculates for the session was three hundred and fifteen.

The degree of D.D.S. was conferred on the following persons by Chas. P. Turner, M. D.

NAME.	RESIDENCE.	NAME.	RESIDENCE.
Aaron, Joseph B.....	New York.	Hambley, Joseph T.....	New Jersey.
Agnew, Thos. H.....	Canada.	Hastings, Wm. A.....	New York.
Albee, Edmund H.....	New Hampshire.	Havice, Charles T.....	Pennsylvania.
Aldred, H. Augustus.....	Pennsylvania.	Haynes, Harry W.....	Maine.
Andler, George J.....	Massachusetts.	Henderson, Geo. A.....	Pennsylvania.
Archer, Cutnbert C.....	West Indies.	Hewish, Herold C.....	Canada.
Baker, Albert R.....	Canada.	Hill, Ambrose L.....	New York.
Barrett, Edward C.....	Maine.	Hinder, Arthur G. A.....	Australia.
Beach, Louis L.....	Connecticut.	Hodgkins, Harvey L.....	Maine.
Black, Fred L.....	New Brunswick.	Hoopes, Charles W.....	Pennsylvania.
Blanchard, J. E., Jr.....	Louisiana.	Hohl, Carl F.....	Indiana.
Booth, Frank E.....	Kentucky.	Hunter D. Elmer.....	Canada.
Booth, William H.....	Pennsylvania.	Ichinoi, Masatsune.....	Japan.
Bolger, William M.....	Pennsylvania.	Jackson, J. Holmes.....	Canada.
Bragdon, Charles S.....	Maine.	Jessop, William D.....	Pennsylvania.
Brown, Clark W.....	Pennsylvania.	Johnston, David W.....	New Jersey.
Burdates, Oscar W.....	West Virginia.	Justus, Peter.....	Portugal.
Buss, John G., L. D. S.....	France.	Kalbfus, Joseph.....	Pennsylvania.
Caldwell, Wm. S., Jr.....	Pennsylvania.	Kerr, Donald E.....	Canada.
Callaway, William L.....	Missouri.	King, Jesse D.....	Missouri.
Capwell, Courtland G.....	Rhode Island.	King, Thomas J.....	Maine.
Carman, Thomas D.....	New York.	Lewin, Walter W.....	England.
Caspersonn, Edward.....	Australia.	Lewis, William D.....	New York.
Chatham, Edward R.....	New York.	Lindstrom, C. Richard.....	Sweden.
Chase, Arthur L.....	Maine.	Lofland, Howard.....	Delaware.
Chapman, B. O.....	New York.	Logan, William C.....	Oregon.
Chapman, Samuel W.....	Connecticut.	Losee, Irving H.....	New York.
Cohn, Julius.....	Roumania.	MacMullen, David A.....	California.
Cook, William S.....	Pennsylvania.	Maley, Nixon.....	Canada.
Comins, A. Olin.....	Connecticut.	Martin, Emile A.....	South America.
Corkhill, Martha C.....	Pennsylvania.	Martin, Benjamin B.....	Pennsylvania.
Crawford, Elmer.....	Pennsylvania.	Maschke, George.....	Ohio.
Damon, William A.....	Connecticut.	McCullough Piercy M.B.....	Pennsylvania.
Davey, Reuben S.....	New York.	McDowell, Will.....	Indiana.
De Garis, Arthur.....	New York.	McHugh, John, Jr.....	New York.
De Les Derniers, W. R.....	Canada.	McNeille, Charles S.....	New York.
Dennis, N. P., M. D.....	California.	Miller, Frank P.....	New York.
Dienst, Alexander.....	Missouri.	Nakamura, Kazuyos.....	Japan.
Dungan, G. A.....	California.	Nadel, Sigmund.....	Austra.
Eisenbrand, Geo. F.....	Minnesota.	Neel, Ralph A.....	Pennsylvania.
Elder, Jacob S.....	Pennsylvania.	Nickerson, Geo. Q.....	Maine.
Elliott, J. T.....	Kentucky.	Noling, Isaac O.....	Illinois.
Engel, William S.....	Pennsylvania.	Nones, Henry B.....	Pennsylvania.
Fickes, William L.....	Ohio.	O'Brien, John W.....	New York.
Fry, H. M.....	Pennsylvania.	Parker, Fred H.....	Nova Scotia.
Fyffe, Charles, Jr.....	Australia.	Parkhurst, Fenimore.....	New York.
Gelston, William H.....	New Jersey.	Percival, Winston G.....	Pennsylvania.
Graves, James L.....	Oregon.	Pratt, Walter I.....	Utah.
Griswold, Monroe.....	Connecticut.	Preston, Nathaniel E.....	Massachusetts.
Halsey, W. Edward.....	New York.	Pressey, Burt.....	New Jersey.
Halstead, William T.....	Australia.	Quattlebaum, E. G.....	South Carolina.

NAME.	RESIDENCE.	NAME.	RESIDENCE.
Randles, Richard N.....	Canada.	Stockton, Henry E....	North Carolina.
Reid, David P.....	New York.	Sullivan, Joseph C.....	Alabama.
Rhoads, Frank O.....	Missouri.	Sweeney, John.....	Pennsylvania.
Richardson, E. L.....	Maine.	Taube, Friedrich Wm.....	Germany.
Robb, John W.....	Canada.	Tener, Robert W.....	West Virginia.
Roberts, Fred A.....	New Brunswick.	Thistlewood, B. R.....	Illinois.
Robson, John L.....	Pennsylvania.	Thomas, Jenkyn, Jr.....	Utah.
Roe, C. Harry.....	Pennsylvania.	Tompkins, Henry H.....	New York.
Root, Frederick W.....	Massachusetts.	Traver, Frank A.....	Wisconsin.
Ryan, James M.....	Massachusetts.	VanAllen, W. J. Frank.....	Canada.
Shirlow, Wesley W.....	Australia.	Velescu, Leo.....	Roumania.
Shillinger, Eugene A.....	New York.	Waite, Ralph B.....	New York.
Slegel, Walter R.....	Pennsylvania.	Warner, Frank W.....	New York.
Smith, Clarence U.....	New York.	Wells, Claude E.....	Missouri.
Snider, William A.....	New York.	Wells, John I.....	Missouri.
Solomons, Robert M.....	South Carolina.	Wheeler, Gilman A.....	Vermont.
Spangler, Geo. M.....	Pennsylvania.	Whitcomb, Frank E.....	Maine.
Sprout, William A.....	Pennsylvania.	Winterfield, Morris P.....	New York.
Stackhouse, J. A.....	Canada.	Wright, William E.....	Delaware.
Stamm, Carl P.....	Pennsylvania.	Yocum, William L.....	Pennsylvania.
Stark, Nathan P.....	Pennsylvania.	Zellers, R. E.....	Texas.
Steele, N. D.....	Canada.	Ziegler, Charles L.....	California.

Graduates, 146.

Dental Department of the Northwestern University.

The commencement exercises of the University Dental College, Department of the Northwestern University, were held in connection with the Medical Department—Chicago Medical College—at Central Music Hall on April 28th at 2:30 P. M.

The degrees were conferred upon the graduating classes by President Henry Wade Rogers L. L. D. and the Doctorate address was delivered by Professor N. S. Davis Sr., Dean of the Medical Faculty:

The following is the list of the Dental graduates.

NAME.	RESIDENCE.	NAME.	RESIDENCE.
Ellsworth Goldthorp.....	Iowa.	Alexander Clarence Murchison....	Ills.
William Edward Harper.....	Illinois.	William B. Winget.....	Illinois.

The Columbian University, Dental Department, Washington, D. C.

The Columbian University, Dental Department, of Washington, D. C., held its fourth annual commencement at Lincoln Music Hall, Washington, D. C., on Thursday, March 19th, 1891, at 8 P. M.

The number of matriculates for the session was nineteen.

The degree of D.D.S. was conferred on the following persons by Dr. J. C. Welling, M.D., D.D.S:

NAME.	RESIDENCE.	NAME.	RESIDENCE.
Jonathan R. Hagan.....	Virginia.	Benjamin F. Odell.....	Illinois.

Pennsylvania College of Dental Surgery.

The thirty-fifth annual commencement of the Pennsylvania College of Dental Surgery was held at the Academy of Music, Philadelphia, Pennsylvania, Friday evening, February 27th, 1891, at 8 o'clock.

The number of matriculates for the session was two hundred and fifty-one.

The degree of D.D.S. was conferred on the following persons by I. Minnis Hayes, President of the College:

NAME.	RESIDENCE.	NAME.	RESIDENCE.
Wm. Alexander.....	Pennsylvania.	H. S. Keepers.....	Pennsylvania.
E. W. Armistead.....	Virginia.	W. S. Kelly.....	Pennsylvania.
Chauncey Bachman.....	New York.	E. S. Kirkpatrick.....	Pennsylvania.
N. J. Baker.....	New York.	Chas. G. Koester.....	New York.
H. P. Baldwin.....	New Hampshire.	Louis F. Koehler.....	Pennsylvania.
Reberto Barrera.....	U. S. Colombia.	Ricardo Larenas.....	Chili.
T. W. Bortree, M. D.....	Pennsylvania.	H. W. Leightner.....	Pennsylvania.
Richard Y. Bates.....	Minnesota.	A. M. Lewis.....	Minnesota.
L. B. Bowie.....	Pennsylvania.	Wm. E. Linn.....	Ohio.
Chas. G. Bowles.....	Michigan.	B. M. Loar.....	Pennsylvania.
Wm. P. Brown.....	Minnesota.	F. A. Lackner.....	Canada.
Chas. M. Brooks.....	New York.	Wm. J. Longnecker.....	New York.
J. A. Brunet.....	Chili.	Mateo Lucena.....	Venezuela.
Melquiades Bruges.....	U. S. Colombia.	Felice Maddalena.....	Italy.
J. P. Calvert.....	Pennsylvania.	A. P. Matson.....	Connecticut.
George Campusano.....	Pennsylvania.	A. B. Miller.....	Pennsylvania.
C. W. Chapman.....	California.	Morton Mills.....	New Jersey.
Cunningham Clark.....	Pennsylvania.	Fred. Miltenberger.....	Germany.
Edw. Conover.....	New Jersey.	C. O. Morris.....	Pennsylvania.
Sam. M. Cooley.....	Indiana.	E. C. Musser.....	Pennsylvania.
A. G. Courtney.....	New York.	S. J. MacMains.....	Pennsylvania.
A. E. Cribbs.....	Pennsylvania.	Ellen MacMurray.....	Pennsylvania.
Z. H. Curry.....	Pennsylvania.	H. McIntyre.....	Canada.
T. J. Crymes.....	South Carolina.	A. L. Parker.....	New Hampshire.
C. T. Dahlin.....	Illinois.	V. A. Pazmino.....	U. S. Colombia.
H. H. Donaldson.....	Pennsylvania.	Henry A. Phillips.....	England.
Geo. W. Dunbar, Jr.....	New York.	E. E. Phipps.....	Pennsylvania.
C. B. Edmiston.....	Pennsylvania.	Wm. C. Porter.....	England.
Max J. Fischel.....	Pennsylvania.	Jaquin Preto.....	U. S. Colombia.
S. W. Frazier.....	Ohio.	C. G. Richardson.....	Pennsylvania.
J. W. Fulstone.....	Nevada.	F. W. Rice, M. D.....	Pennsylvania.
G. L. Grier.....	Delaware.	Louis S. Robenshon, M.D.....	Russia.
M. E. Grossman.....	Honolulu, H. I.	Emetrio Serrand.....	U. S. Colombia.
G. W. Gunther.....	Germany.	Jules Simond.....	Switzerland.
E. T. Grosvonor.....	Michigan.	Geo. N. Slater.....	Pennsylvania.
J. G. St. Hammond.....	Sweden.	C. P. Shoemaker.....	Pennsylvania.
W. J. Hardie, L.D.S.....	Scotland.	F. W. Steinbock.....	Pennsylvania.
W. G. Hayes.....	Pennsylvania.	H. J. Stewart.....	New York.
J. J. Heffernan.....	Pennsylvania.	T. B. Stewart.....	Pennsylvania.
L. W. Heinlein.....	Ohio.	Ellwood Tate.....	Pennsylvania.
Geo. H. Heist.....	Virginia.	W. K. Thorp.....	Pennsylvania.
H. M. Hertig.....	Pennsylvania.	C. L. True.....	New Hampshire.
Windfield M. Hubler.....	Pennsylvania.	Chas. S. Voorhis.....	Pennsylvania.
Morgan L. Hulme.....	Pennsylvania.	S. D. Weber.....	Pennsylvania.
E. L. Irving.....	Minnesota.	W. R. Wilkinson.....	Canada.
F. W. Ivory.....	Canada.	Emily W. Wyth, M.D.....	Pennsylvania.
G. R. Johnson.....	Canada.	Emma C. Wygant.....	New York.

University of Iowa—Dental Department.

The ninth annual commencement of the Dental Department of the State University of Iowa took place at the Opera House, Iowa City, Iowa, on Monday evening, March 9th, 1891.

The annual address was delivered by William Stevens Perry, D.D., L.L.D.

The number of matriculates for the session was one hundred and sixty-one.

The degree of D.D.S. was conferred on the following persons by Charles A. Schaeffer, Ph. D., President of the University.

NAME.	RESIDENCE.	NAME.	RESIDENCE.
R. C. Amrine.....	Illinois.	Thomas Gormley.....	Mt. Vernon.
J. O. Applebee, A. M.	Red Oak.	C. L. Girls	Muscatine.
H. O. Allen.....	Wapello.	James Galway.....	Wisconsin.
C. F. Adams.....	Independence.	J. E. Hawthorne.....	Illinois.
D. C. Brett.....	Morrison.	L. C. Hall.....	Burlington.
G. H. Barker.....	Massachusetts.	P. R. James.....	Belmond.
G. H. Belding.....	Calmar.	C. O. Jerrell.....	Mt. Pleasant.
E. Bumgardner, B. S.	Kansas.	L. E. Kaltenbach.....	Wisconsin.
J. W. Billings.....	Union.	C. E. Laird.....	Newton.
A. L. Brown.....	Perry.	J. F. Leigh.....	Dyersville.
D. J. Brown.....	Waterloo.	Cora G. Little.....	Perry.
Frank Ball.....	Nebraska.	W. D. McLain.....	Dyersville.
N. Burdick.....	Davenport.	Jas. McNeil.....	Mason City.
C. D. Bemiss.....	Washington.	W. W. Moorehead.....	Illinois.
Frank Bickel.....	Illinois.	G. C. Money.....	Beaman.
R. S. Bandy.....	Fairfield.	J. B. Moats.....	Illinois.
W. J. Coughlan.....	Colfax.	C. A. Marshall.....	Nebraska.
A. L. Currie.....	Earlville.	A. E. Osborn, C. S.	Summer.
George Cogley.....	Clarinda.	J. L. Riggs.....	Castalia.
V. K. Chandler.....	Perry.	J. M. Raugh.....	Maxwell.
G. E. Chambers.....	Wisconsin.	S. B. Reque.....	Minnesota.
W. C. Davis, B. S.	Oxford.	M. A. Robinson.....	Maquoketa.
J. W. Downey, M. D.	State Center.	W. F. Ryburn.....	Illinois.
S. G. Dowdey.....	Cherokee.	H. C. Reeves.....	New York.
J. B. Ellis.....	Maquoketa.	C. C. Smith.....	Illinois.
W. E. Fish.....	Kellogg.	L. F. Steuerwald.....	South Dakota.
C. A. Fuller.....	New York.	M. J. Spencer.....	Waterloo.
L. L. Foote.....	Minnesota.	W. C. Schoemaker.....	Muscatine.
L. S. Forbes.....	Fayette.	J. P. Von Lackum.....	Waterloo.

The reports from other colleges will appear in the July REGISTER.—[EDITOR.

THE *Medical Record* reports that Dr. M. Sternberg has found something new in human osteology. It is only a little hole in the sphenoid bone, which he calls the “canalis cranio-pharyngeus.” It is best seen in the skull of a child four years of age.

EDITORIAL.

Mistakes of Physicians.

It is a happy thing to know that human beings are not perfect in everything that is done, and it is especially gratifying to know this because it gives the dental practitioner a great degree of relief from the exacerbations that are sometimes cast upon him by the medical practitioner. That mistakes occur by both is not to be disputed. We believe the person who knows most, generally, and can put his knowledge into practice is the best educated man, though in a specialty a specialist will far outstrip him. But there are common mistakes that physicians make that the dentist can not help but laugh at. We do not say that all physicians make these mistakes.

It is not uncommon to find physicians who do not know how many teeth an adult should have, and it is still more frequent that the number of deciduous is not known.

A very common mistake, likely to be made by a physician, is when a child with an impediment of speech is brought to him and the doctor declares it is "all due to a high roof of the mouth," when the cause is really cleft palate or a short frænum linguæ or "tongue-tie." We have actually seen physicians who did not recognize either cause. A case in practice will illustrate. A lady brought a four years old child to our office, to have an aching tooth extracted. The ache was relieved by proper remedy. On examining the mouth, however, a serious tongue-tie was noticed, and this rendered the words of the child unintelligible. The tongue could not be lifted at its tip above the incisive edge of the incisor teeth. On account of the incoherent talk and inability to walk the child was declared to be an idiot, by a physician of some thirty years practice. Imagine the suspense and anxiety of the mother over that child's future. Another physician examined the spine and legs of the child, and though weak, were developing slowly. Time and exercise would soon see the child walking, but it remained for

the dentist to discover the condition of the tongue and inform the mother that the child was not an idiot. Subsequent facts support the latter's declaration.

Another source of mistakes may be found in simple neuralgic pains from an exposed pulp of a tooth. Every dentist can relate circumstances of Dr. So and So who treated Mrs. Blank for neuralgia for several months and the whole trouble was relieved in a few minutes by proper care of the teeth.

We recently saw a surgeon tie a broken jaw together with one strand of silk thread. The fracture was between the bicuspid and cuspid tooth, lower jaw. The thread was passed around the labial sides of the incisors to the second bicuspids and then across the mouth. The mouth was then closed and a paste board splint made which was tightly held in place by bandages. The patient was then told to "suck his food through a straw." We pitied the patient but were powerless to act. Such surgery is deplorable. An angle splint would have made life worth living in this case.

How frequently physicians mistake a common gum boil for a tumor and label it malignant. We have heard of such errors being made by "great" medical authority. Catarrh has drawn many victims to the grave by the dread of its name, and doctors are responsible, when the whole affair might have been cured by treatment of the antrum of Highmore. These and other instances indicate the small amount of intelligence displayed in regard to the mouth by physicians and surgeons. We might add that some very good physicians and surgeons have made blunders in the directions we have indicated. As for the remedy of such a state of affairs, education alone is the desideratum.

It may be said to the praise of a number of the medical colleges, especially of the west, that a department of dental surgery is embraced in the curriculum of study, and we have no fears of the graduates from such institutions making egregious mistakes of diagnosis when such institutions have for teachers some of the best men of our profession.

W.

Parts and Percentage.

The chemist is not an errorist and therefore we submit to him many of the details of our work on account of his pharmaceutical ability and his knowledge of the elementary forces. Little do we think how much we depend upon him until we analyze his work, and yet we should be conversant with the knowledge of, if not of the manipulative skill in compounding medicines. Our success in the application of medicaments may be truly dependent upon the quality of the preparation the chemist or pharmacist prepares. With a poor drug the most skillful dentist may not be able to attain the desired effect, and hence our dependence upon the chemist.

It is often a necessity to combine medicaments and this calls into requisition our knowledge of the composition of the articles to be combined. Combinations may result in solids, liquids or gases, or, interchangeably united, might produce one of the three conditions.

As we have mostly to do with liquid combinations, on looking over those used by the dentist, we find that they are largely solutions.

A solution, properly speaking, is a combination of a liquid with either a solid or a gas to form a homogeneous liquid. If there be an excess of any one of the formative elements, then the remaining part is a mechanical admixture.

To unite these elements we must resort to weights, measures, or volumes. In making solutions there is usually a condensation or expansion of volume, or a rise or fall of temperature, though solutions without these conditions are undoubtedly common.

For the sake of accuracy in the preparation of most of our medicaments, the combination by weight or measure is mostly used. The solution of solids with liquids is performed by weighing each in order to attain certain proportions, which is given in parts or a percentage of parts.

In expressing parts, the whole number of parts to be expressed is generally dependent upon the amount of solid to be dissolved. If large, we usually express the whole number of parts as 10, 20,

30, 40, 50 or 100, where, as when small, the total number is usually expressed in the thousands; thus we say, one part in ten or a hundred which is a large proportion compared to one part in one thousand.

On the contrary, whilst in expressing by parts, decimal notation is the usual plan pursued, in expressing by percentage, a deviation from the counting by tens is often noticed. Here, too, the entire number of parts is one hundred, and that is understood without saying 5 per cent. of 100.

There is really no difference in the terms parts and percentage but their use is one of convenience under different circumstances, it is only the mode of division that is different.

In accepting parts and percentages as modes of division we must not overlook the mighty grain, as an initial factor when the division is by weight. Many are ignorant of the values in grain weight of ounces and pounds and their transformations into ounces and pints liquid measures. The differences in weights arises from arbitrary fixture of the standard. A fluid ounce of water at 60° F. according to the United States standard weighs 455.6216 grains; the U. S. Dispensatory gives it 455.6944 grains and the British standard is 455.6910 grains. The average weight is 455.6690 grains. Thus we see how inaccuracies may occur by the best chemists even though the differences only extend into the thousandths of a grain.

We wish to say in conclusion that such drugs as cocaine, now in use, are often made up into solutions in a slipshod way and and not enough care is taken to equalize the parts or obtain the correct percentages. In such cases the danger from their use is apparent.

W.

CHICAGO is to have a complete dental library. The Chicago Dental Society has given its library to the Newberry Library under an agreement that it shall have ample and suitable accommodations in the new building, and that sufficient money shall be spent to complete and keep it equipped with all new publications in the future. The Newberry Library has an ample endowment and this will doubtless be one of the best dental libraries in the world. Happy Chicago.—H.

Dental Law.

THEY are trying to pass a new and better dental law through the Illinois Legislature, and a Chicago dentist is making an unenviable reputation by opposing in every way he can the passage of the bill, on the ground that it makes the requirements so rigid that no one but college educated men, will be able to enter the profession hereafter. And because the course of study in the colleges has recently been extended so as to require three years of study for graduation, no poor boys will be able hereafter to take this college course, because of the expense, and therefore no poor boys will get into the profession. On this basis he stigmatizes this bill under the specious argument that it is class legislation. Of course, we all know that such arguments ought not to influence legislators, but we fear they will. If the poor boy wants to get into the profession he will be willing to work and pay for it too, if he knows there is no other way of honorable entrance. And the same will be true of the boy that can spare the time and money without inconvenience. There is no poor boy that is in earnest and willing to do his best, but will find some sympathizing friends to help him if he will prove himself worthy. It would be a shame and a disgrace to the profession to lower the standard of qualification on any such grounds. The higher the standard of attainment required for permission to practice, the more reliable will be the service to the general public, the most interested party. There is also another phase of the question that the profession is deeply interested in; namely, the dignity and general repute of the profession itself among other professions and the general public. We owe it to ourselves that our calling shall take no mean rank as to scientific attainment; if we are content to class ourselves with the trades, we should give up the professional idea, and quit conferring degrees, that does or should be, significant of something more than mere handicraft. Make the qualification high enough to keep out all badly qualified men and to stimulate bright, intelligent boys to do their best to enter a profession which will honor them in proportion to the rank they attain in it.—H.

A Pleasant Visit.

On the 15th of March, 1891, the next day after the adjournment of the Mississippi Valley Dental Association, several members, namely, Doctors James Leslie, A. O. Hise, J. J. R. Patrick, E. G. Betty, L. E. Custer, J. Taft and William Taft, after due preparation, made their way to Xenia, Ohio, to call upon that veteran member of the profession, Dr. George Watt.

It is, of course, known to all of the profession that the Doctor has been an invalid for many years, often suffering very greatly, but on this occasion he was found really better than was expected. He received the party with seeming delight, and entertained them for the day in a way most highly satisfactory to the visitors. Though the Doctor's physical strength is much impaired, it is remarkable to what degree his mental faculties retain their strength and power, they seemingly would be about equal for the old time work if the physical strength was present. The intellect is strong and willing, but the body is weak, and though he has been practically out of the profession for many years, yet, he is interested in, and even enthusiastic, in whatever pertains to the interest of dentistry. He has, under the circumstances, kept up remarkably well with its literature. It was a matter of gratification to every one of these visitors that they could enjoy a full day with the Doctor and have much of the old time pleasant conversation and repartee. May he remain to enjoy many more such pleasant occasions, is the wish of all these visitors.

"Oh, yes! Oh, yes!" We've got 'em this time, the largest, rarest and greatest symposium of unique attractions ever gathered under one case—roof. "No flies any more, everybody invited, and don't you forget it" May 13th and 14th; come and see Miller, Shepard, Pierce, Kirk and a host of others, each in a great act, "*Don't forget the date.*" "One special feature at the enormous expense of \$300, will pay any one for coming." "The eyes of the world are upon us"—President. Does this remind you of anything?—H.

An Important Announcement.

FORTHCOMING.

P. Blakiston, Son & Co., the medical publishers of Philadelphia, announce for early publication, "A Handbook of Local Therapeutics," being a practical description of all those agents used in the local treatment of disease, such as ointments, plasters, powders, lotions, inhalations, suppositories, bougies, tampons, etc., and the proper methods of preparing and applying them.

The diseases which chiefly require local treatment are those of the respiratory passages, ear, eye, skin, together with certain general surgical affections, including the diseases of women. In order, therefore, that the various uses of each remedy may be thoroughly set forth, the following gentlemen have assumed the authorship:—Harrison Allen, M.D., emeritus professor of physiology in the University of Penn; laryngologist to the Rush Hospital for consumption; late surgeon to the Philadelphia and St. Joseph's Hospitals. George C. Harlan, M.D., late professor of the diseases of the eye in the Philadelphia Polyclinic and college for graduates in medicine; surgeon to the Willis Eye Hospital, and eye and ear department of the Pennsylvania Hospital. Charles B. Penrose, M.D., surgeon to the German Hospital; instructor in clinical surgery, University of Pennsylvania, and Arthur Van Harlingen, M.D., professor of diseases of the skin in the Philadelphia Polyclinic and College for Graduates in Medicine; late clinical lecturer on dermatology in Jefferson Medical College; dermatologist to the Howard Hospital.

Each remedy will be taken up in alphabetical order, and after a succinct description of their pharmaceutical properties, by Dr. George I. McKelway, will be considered with reference to the local treatment of the affections above outlined. The authors believe that the information contained in this work will not be found elsewhere. The activity in the various lines of special medicine is one of the most striking phases of the times, and has here materially changed many of the older methods of treating disease by local means. The greater part of the literature which appears is not accessible to most physicians. The Handbook, it is believed, will be of value to general practitioners as well as to those who, like themselves, are especially interested in subdivisions of the clinical field.

The work will form a compact volume of about 400 pages, arranged in a manner to facilitate reference and containing, besides the usual index, a complete index of diseases, that will greatly enhance its usefulness.

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COMMUNICATIONS.

The History of Dentistry as a Co-ordinate Branch of the Healing Art.

BY F. S. WHITSLAR, YOUNGSTOWN.

Presidential Address before the Northern Ohio Dental Association.

Every thought, every impulse, every principle or rule of action as well as every living thing has originated in a germ or its type. The being who rules in the heavens and among the inhabitants of this lower sphere, has in but few instances brought anything at once into mature existence. To be born, to grow, to arrive at maturity, to die, and to decay is but the history of every living thing as well as every work of creation. Institutions of learning, the sciences and arts, have been progressive in their character. It is not my purpose to trespass upon your time by giving you an elaborate history of dental science, but will concisely sketch the history of the dental art with a view of placing before you our position as a co-ordinate branch of the healing art. To do this it will not be necessary to determine the exact date at which the practice of medicine was first known.

Like many arts, its origin is involved in considerable obscurity; but this we know, that at a very early age the power to heal the sick, mitigate the pangs of suffering humanity, and stand between disease and death, was esteemed to be a God-given attribute. Much has been said and written respecting the antiquity of medicine. Now I claim the same antiquity for the dental art. The Ancients, who inclined to mythological rather than to natural causes, affirmed the science of medicine to be a divine

emanation and impersonated it, first in Apollo and next in Esculapius. Thus its early history is mixed up with mythology and poetry.

Now while it is almost impossible to imagine a state of primitive society so happy as to be free from pain and disease, yet we find in proportion as people advanced towards civilization, and abandoned their more simple habits of living for idleness and luxury, so did disease in its various forms call into requisition the skill of the physician. Those same habits of refinement and luxury, and consequent attention to personal appearance must have rendered the practice of the dental art one of considerable importance even at a very early period of the world's history.

According to Heroditus there was a subdivision of medical science, and no practitioner was allowed to practice any but his own peculiar branch. Hence some were oculists, others attended solely to diseases of the head, others again to those of the teeth. It is not, however, till the time of Hippocrates, that we meet with any distinct notices of the diseases of the teeth. This appears the more extraordinary, as the significance of these organs, to say nothing of their useful or ornamental functions, was regarded by the ancient Egyptians in a very remarkable manner.

One of their most severe and degrading punishments consisted in the abstraction of a front tooth.

There can therefore be, I think, but little doubt that the manufacture of artificial teeth and other branches of the dental art were practiced at a much earlier date than that of which we have the first mention in history. The loss of the front tooth, whether by disease or otherwise, would, during the existence of that Egyptian punishment, give rise to unpleasant suspicions; and it may be presumed that every exertion would have been made to supply the deficiency. Belzoni and others discovered rudely manufactured teeth in the sarcophagæ of the Egyptians.

Again, as regards the use of gold leaf, Sir Gardiner Wilkinson states as a singular fact, that the Egyptians stopped teeth with gold. Proof of this was obtained by the examination of some mummies from Thebes. Bridgework was not unknown to the

ancients. Dr. George Evans gives some illustrations of their primitive character and antique methods. We also have historical evidence that the general appearance of the teeth and their diseases, attracted considerable attention among the Greeks and Romans. The wearing of artificial teeth formed the subject of satire of some of their poets. Hippocrates and Galen mention sundry electuaries for beautifying the teeth.

The subdivision of medical practice to which I referred before, justifies us in concluding that dentistry engaged as large a share of the attention of the ancients as did any other branch of the healing art. Albucases, an Arabian physician, who lived in the early part of the eleventh century, wrote on diseases of the teeth and gave drawings of instruments then in use for extracting, scraping and other dental operations. He directs that if hollow, they should be stopped with cotton, refers to filing teeth and fastening loose ones with gold thread.

However, giving the ancients the credit to which they are entitled, it is not at all extraordinary that some of their opinions and methods should be useless for our purposes. They did not have the aid of that mighty power, the microscope; at least no mention is made of microscopic investigations in those times to which I have been alluding.

It is somewhat difficult to appreciate the observations of Hippocrates, who describes the teeth as glutinous extracts, from which the fatty matter has been burnt out by heat, and who affirms that they are harder than the other bones because they have no heat in them.

Aristotle, who has some observations respecting the teeth of man and animals, declares them to be the only bones which grow through the whole life, saying that if they did not they would soon be worn away by attrition. He adds that the growth is manifested in those teeth which have lost their corresponding opposite in the other jaw, referring of course to the elongation of teeth arising from the want of opposing force.

Now, by these observations from ancient authorities, I think I have shown the antiquity of our calling, and the attention bestowed upon the teeth at the earliest period of medical history.

I shall, however, proceed to bring my observations somewhat nearer to our own time. About three hundred years ago, the dental art began to receive that peculiar attention to which, from its importance and general usefulness, it was entitled.

About that time there were a number of treatises published on the subject, and while their usefulness has been greatly diminished by discoveries since made, still they are interesting as evidence that dental surgery was in the sixteenth century considered of very great importance, and that time and experience only were required to raise it to its proper station in medical art. Fouchard, of the eighteenth century, was the first to classify the diseases of the teeth. Previous to his time the practitioners appear to have merely considered the teeth in their mechanical arrangement taking little or no account of them as complex organic structures, entering by their own vitality into the formation of the living body.

Fouchard not only directed attention to the construction and separate treatment of the teeth, but he also pointed out the indications which, in common with the adjacent parts, they furnish of the general state of the health. It was without question the most important advancement in dental science to demonstrate that the teeth afford an indication, not merely of the apparent, but also of the innate and fundamental constitution of individuals.

It was, however, in 1747 that Haller, after thirty-six years of close study, published his remarkable work on physiological and pathological science, the results of actual observation of the laws that govern the growth and decay of living bodies. The first work that appeared in English in a popular form was by Berdmore, and was published in 1770. In 1772 the celebrated work on the "Natural History of the Teeth," by the great John Hunter was published. This was followed by a dissertation on the "Structure of the Teeth of Man and Animals," by Robert Blake. So much had the subject grown in consideration that by the end of the eighteenth century more than one hundred works had been published on the subject, including those of Malphigi, Purkinge, Retzius, Muller, &c.

Time will not permit me on this occasion to enumerate the various valuable contributions to dental science that have since been published; but I may, without a desire to lessen the merits of others, mention the names of Fox, Bell, Goodsir, Nasmyth, Tomes, Owen, Magitot, Wedl, Harris, Salter, Kingsly, Garretson, Richardson, Taft, Black, Miller and a host of others. Men identified with our profession and who stand pre-eminent as representatives of dental science and art.

In conclusion permit me to say that while the present is an age compulsive of deep thought and earnest reflections—an age that lays manly hold on things now that were once only dreamed of and hoped for; par excellence, an age of progress and scientific discoveries.

I would not be acting in accordance with my own impulse if I failed to congratulate the members of the Northern Ohio Dental Association for what they have done by associated effort in elevating the standard of dental science and art. I said by associated effort. That is in harmony with a law of the universe: "It is not good for man to be alone," means something. True, some of the pioneer members, men of broad minds and warm hearts, have passed out through the silence into the beyond, yet their influence still lives, and of them we say, All hail! Well done!

Congratulate you because today your chosen profession stands the peer of any of the learned professions.

Thanking you one and all for the uniform courtesy shown me while acting as your presiding officer and soliciting a like indulgence for my worthy successor my task is ended.

Dr. E. G. Tucker exhibited before the Society of the American Academy of Dental Science a case of crown and bridge-work that he had inserted in a ladie's mouth in 1844, and which was worn with satisfaction forty-five years, until 1889. The teeth were porcelain, carved, single teeth (left upper central incisor and right and left upper canines) set on a gold plate, with gold pivots attached, and the three gold pivots were inserted into the hickory pivots which had previously been placed in the roots.

Development of Teeth.

BY WILL. H. WHITSLAR, M.D., D.D.S.

Read before the Northern Ohio Dental Association, at Oberlin, O., May 12th, 1891.

The first general conception with which we should begin the study of vital phenomena is the mutual dependence of all things, which in their groupings together, compose the system of nature. This dependence requires for each being the simultaneous existence of all the others. Physiology is an independent science resting upon truths of its own, which it draws from the observation of those actions, which in their aggregate connections constitute life, but it is enriched by facts furnished to it by collateral sciences. Of all collateral studies anatomy is that which will enable us to obtain the best appreciation of the beauties of living phenomena. Anatomy is, indeed, a part and parcel of physiology, bearing the same relation to it as geography does to history. Now, the phenomena of development, growth, sensation, decay and death, and many others, belong to life, but life occurring only in material structures which subsist in obedience to the laws of physics and chemistry, is truly a superstructure on these laws, and can not be studied independently of them. Indeed, the greater part of the phenomena of organic beings are chemical and physical phenomena, modified only by an additional principle—*life*. When asked what is life, all we can do is to tell some characteristics of the principle of life. One says it is the union of soul and body; another that it is the inherent principle of action, but I think it may be tersely summed up in this: "Life is the visible expression of that arrangement in nature by which elementary substances are in such wise combined as to form organic bodies."

The beginning of all things is small, and the neglect of small things is the grand error in studying life as well as in starting life, and I might add this aphorism: "The nearer to the beginning that the deviation from the right course is, the greater the wrong in the end."

To begin aright, then, we must recognize a fact that was unknown for many centuries to anatomists and physiologists, and that is this; *All animals arise from eggs.*

The human body, like every other animal organism, is composed of a vast number of units called cells, all of which originate from a single form called the parent cell; to give its scientific name it is termed *cytula*. I do not mean that all cells are originally from a single form in outline, but in substance we reproduce only our kind; there is no evolution from one organized being to that of another different in form and duty. Some authorities say that it is more proper to call a cell a corpuscle or plastid.

The parent cell, or cytula, is the result of the union of the spermule, or paternal cell, with the ovule, or maternal cell. The union of these two elements is commonly spoken of as the impregnation or fecundation of the ovum.

(Illustrated on blackboard.)

Following impregnation the process of segmentation takes place by which the egg divides and sub-divides by a series of successive segmentations into a number of cells of which all the cells of the future animal are the direct descendents. We must, however, keep in mind that whilst the whole body of matter is called an egg, yet only a part is the true egg, and the remaining part forms, or is used, as food by the growing germ. It is only the *germ spot* that divides, and this spot is generally known in scientific parlance as the *germinal disc*. In birds the egg is large, and the larger part is used for food on account of its being unable to segment. In mammals the ovum is small and contains a small amount of food yolk and in consequence the whole ovum segments. Partial segmentation is known as *meroblastic*, and when the whole egg segments it is known as the *holoblastic type*.

Now, it would be impossible for me to give in one dissertation on development of the teeth even a synopsis of segmentation and its sequelæ resulting in the perfected animal, so let it suffice to say, that consequent upon segmentation there are formed three layers of cells known as the hypoblast, epiblast and mesoblast.

From these layers of cells, intricate and mysterious but yet beautiful developments occur, giving rise to parts whose aggregate co-ordinations reveal the living man. We now learn that the enamel of a tooth is a derivative of the epiblastic layer, whilst all the remaining parts are of mesoblastic origin. The enamel then comes from that layer which forms the epidermis, retina of the eye, labyrinth of the ear, taste buds, crystalline lens and the lining membrane of the mouth. The dentine, cementum and pulp of the tooth takes origin from the same layer that composes the bones, muscles, arteries, veins, lymphatics, generative and urinary organs, connective tissue, etc.

It would be proper to describe the process of the development of the jaws and buccal cavity, and it would conduce to our understanding of the development of teeth, as well as how enamel and dentine are deposited, but time and space forbid. It involves a minute study of histology as well as of crystallography.

Now, dental histologists tell us that at about the forty-fifth day of embryonic life, in the epiblastic layer which covers the gums, is seen the first indication of cellular activity which will result in the evolution of the teeth. The thickening of the epithelium is at first general, but after a short time it becomes thicker at the crest of the gums and in a line of the future arch of the teeth.

As the outer cells are an elaboration, or a kind of casting off from the younger cells which have performed their active work of life, we find that, as a result of the activity of the younger cells, or infant layer of the *reta malpighii*, the older cells proliferate so as to form a ridge. At the same time these cells are heaped up, the infant layer is pushed down, pushing the subepithelial layer beneath.

This gives rise to the opinion of Goodsir that there was first formed a groove, called primitive groove. Naturally this would seem so if the older cells were taken away leaving a groove, as it were, in which they rested. All these cells together as they repose in the so-called groove have been given several names, as *bourrelet*, which means pad or cushion, or *cartilago dentalis*, because of it having been supposed to be cartilage. This is now

called the *epithelial band*, because it expresses the condition of affairs better.

This band assumes a direction with its axis toward the inner side of Meckel's cartilage, and the next thing to notice is the peculiar curve of the band whose convex side is always toward the outer side of the jaw. The whole band is, however, on the inner side. At the anterior part of the jaw it is deepest and narrower, and gradually grows shallower until it flattens out into the epithelial covering of the jaw.

In the deeper parts of the band, cellular activity is greater, and here cells proliferate to form a process of the band, and spreading out into a sheet-like form, it is termed the *lamina*. As the lamina grows deeper the band becomes shallower, and sometimes disappears. From the lamina at regular periods corresponding with the position of the future tooth, small buds appear and extend into cords, each cord developing, in time, into the enamel organ of the temporary tooth. As said before, the cord is a process of the lamina and like it, is composed of a solid ingrowth of cells which constitute the lamina. The infant layer constitutes the outer layer of the cord and is composed of oval and spheroidal cells. As the cord grows, cells inside of it proliferate to form a bulbous extremity. Then the part of the cord connecting the bulb with the lamina is known as the neck of cord. The length of the cord varies. In the human being it is short. For the permanent teeth the cords are longer than for the temporary teeth. It is well to keep in mind that the cord is derived from the lamina, and the lamina is from the band, and the band from the oral epithelium. Remember too that the *infant* layer of cells constitutes the outside layer of the cord.

Speaking of the cord it might be well to speak of the cord for the permanent teeth. The cord for the permanent tooth arises from the cord of the corresponding temporary tooth, that is, from the central and lateral incisors, bicuspid, and in some instances, from the first permanent molar. As a rule the cord for the permanent molars arises from the Malpighian layer of the mucous membrane and from the lingual aspect of the temporary teeth.

The time for the origin of the cord for the permanent teeth

varies considerably. The length of the cord also varies, and has a spirality that marks it as a characteristic of the cords for the permanent teeth.

As the cord grows down the end becomes bulbous and it invaginates because of its contact with a papilla which is derived from the connective tissue which will be remembered as a derivative of the mesoblast.

The growth of the papilla is upward toward the gum, whereas the cord has been downward into the substance of the jaw. The bulb of the cord then becomes known as the *enamel organ*.

Now this enamel organ has been and still continues to be the source of much discussion. All agree that this bulbous part of the cord or enamel organ is the means by which enamel is deposited, but just how it is performed remains undecided by all authorities. At the Union Dental Meeting in Boston recently, Dr. R. R. Andrews, of Cambridge, Mass., who is now one of our best microscopists, in a paper on the Development of Enamel, states, "That the cells of the internal epithelium of the enamel organ, the ameloblasts, contain in the part nearest the calcifying tissue large numbers of minute glistening bodies, which have been misnamed granules, but which are really calcospherites." And he further states that these little globules are given out by the enamel-cell into protoplasmic substance and there a condition known as caloglobulin is formed, which in turn calcify, forming rods, and the protoplasmic substance which surrounds them becomes known as the cement substance.

Prof. Sudduth from whom I have largely drawn this description regards the enamel organ as a store-house for the calcific material of which the enamel is composed, and that the stellate reticulum, or that part which is contained in the bulb of the cord, is the essential agent in the formation of enamel, and that the ameloblasts, or that layer of cells to be found on the part of the bulb which invaginates, are the agents which, like men laying brick, deposit the granules in many columns which form the enamel. In this enamel organ there seems to be about enough calcific matter to form the first layers of enamel. Afterwards the outer cells of the enamel organ disappear and capillaries are found

nearer the ameloblasts, so that accordingly the lime salts may almost directly be deposited from the blood. Here is an important item to consider, for by this knowledge we can almost infer that infectious and zymotic diseases may arrest development resulting in those markings we so often perceive.

As ameloblasts are to enamel, so are the odontoblasts to dentine; for the papilla is surrounded by a layer of cells known as odontoblasts, and these cells operate in a similar manner as do ameloblasts in depositing the calcific material. As depositions of dentine take place, the papilla grows smaller and eventually becomes what is known as the dental pulp. It is worthy of note that there is no connection whatever between the enamel organ and the dentinal papilla by blood vessels or other tissues and consequently none between their products. At the same time that the dentinal papilla begins to grow there also begins to form around it an envelope of tissue, coming as a derivative also of the mesoblast, and the exact office of this envelope, so to speak, is not known, but is supposed to be instrumental in forming the cementum. This forms at the same time that the periosteum for the bones is in progress. As time progresses all these processes unite to make the formed tooth, and this illustrates our proposition in the beginning, of the mutual dependence of all things, and this substantiates the truth that no effect is the result of any one cause, except the first Great Cause.

In conclusion, allow me to say that it must be acknowledged that this subject has only been treated in a summary way in this paper. A paper complete in all details cannot now be written, since the cycle of our knowledge remains immature. This cycle began in the year 1574, when Eustach discovered the tooth germ and 1815 when Delabarre gave the first details of the development of the teeth. Within this cycle of experimentation and discovery we have to notice the names of Legro and Magito, Tomes, Huxley, Hunter, Desirabode, Sudduth, Beale, Andrews, Black, Graf, Spee, Tomes, Boedecker, Heitzman, Abbot, and many other luminaries whose contributions have almost completed the cycle, but ere it is completed all must unite in definite conclusions.

Preparing Sections of Teeth for Histology and Bacteriology.

PART I.--HISTOLOGY PRACTICAL.

VIDA A. LATHAM, ANN ARBOR, MICH.

Part of a paper with additions read at The Student's Dental Society U. of M.

The reason dental histology is as yet in its commencement lies, I believe, chiefly in the fact that the methods of preparation are very tedious, or at least appear so to the would-be investigator, and the methods used are not perhaps as good as they might be, had more time been given to this specialty. The course on histology is too brief to be of much use to the dental student, and very often the structure of the teeth is only *very* briefly noticed, if at all. Therefore it may be well if we can find some allusion to the many methods mentioned and a short notice of some of them be collected in this paper, where they can be of use for some future time. It would be well if authors of papers who write in this line of work, would give the practical methods at the same time, and thus enable one to have specimens to illustrate the articles and help in proving some of the ideas often advanced at the meetings, and in this way give the value of an entirely different opinion on the subject.

As regards re-agents and stains, the fewer and simpler that obtain a given result the better, though when the student is able to use the ordinary stains *well*, he can always try others. A special room for microscopical work should always be had, if possible, or a corner of a room with a good light where all this work can be done without any interruption. If possible, oil-cloth should cover the floor, which can easily be wiped over with a damp cloth, to take up the dust, for cleanliness is *absolutely essential*. A strong, firm table with a few drawers, is very convenient, and should be painted with a dull black paint to act as a background for the examination of specimens. The cost of apparatus will vary from fifty to one hundred dollars, including the microscope,

incubators, sterilizers, glass, stains, &c.—though if the student is unhandy in making odd apparatus the cost will be considerably more. The best advice is, only to get a little apparatus to begin with, and add to it as the requirements become necessary.

Dental microscopy, for convenience is divided into:

(1.) Hard sections. (2.) Softened sections. (3.) Pulp sections. (4.) Development sections.

(1.) *Hard sections*: (a) The old method of cutting a fresh tooth into sections with a saw, grinding down fine, thoroughly cleansing, polishing, and mounting in Canada balsam, is one of the best methods for hard sections, when not required to show the pulp and more delicate structures.

(b.) Ground glass, using with it in the early stage, fine ground pumice stone, which is also especially convenient for grinding rough shells, like those of the lobster or crab is a good method. First soak the jaw of a mouse, rat, weasel, etc., in a solution of balsam in benzole; allow it to become hard, and then grind down as above. Very beautiful sections showing the teeth *in situ* may be made.

(c.) Another way is to take a tooth, the fresher the better, and if care is used, you can make two or three sections from it by using a new, thin, fine file to cut through the enamel, wet with turpentine and soft soap, and then use a broad-frame saw for cutting through the dentine. The section should be about one-eighth of an inch in thickness. Next flatten one side on a fine revolving corundum wheel (Ash's No. 9, fine) till it is ground quite flat. Then polish that side with the most perfect polish it is capable of receiving, on a piece of wet buff leather, with some putty-powder on it. Now take a piece of stout plate glass about two inches square, put a little old, and consequently tough, Canada balsam on it, warm, and spread it a little larger than your section. Let the balsam cool till it is "tacky;" then press the polished side of the tooth into close contact with the glass. When quite cold, proceed to grind as in the first part of the operation till you get the required thinness, when the side may be also polished. The hard balsam around the section supports and protects the edges, which will not be fractured (unless heated too

much) and made jagged and untidy. In *not* putting the tooth on the glass till the balsam is somewhat cool, you prevent the polished surface from being covered by fine cracks, and also the balsam from running into the tubular structure of the dentine. A useful embedding mixture I find for grinding teeth and bone is made or composed of colophony resin, two parts, wax, one part; melt them together, and embed a piece of tooth or bone in the mixture, to a piece of glass. Then rub down thoroughly on sandstone, polish with emery paper of different degrees of fineness, then putty, on the glass.

(*d.*) Another method is to grind the sections till thin, holding it against the wheel with a smooth, firm cork, or it may be attached to the cork by aid of the resin mentioned above. It is recommended to endeavor to split the tooth with a pair of splitting-forceps in such a manner that the line of division passes through the centre of the cavity; place the thin section between two plates of ground glass with water and some levigated pumice powder, and by a rotary motion of the upper glass gradually rub the section down till it is thin enough to be examined with even high powers. Great care must be used when finishing, as an extra turn of one of the glasses may ruin the whole section. To finish with, old polished glass is the best, and when sufficiently thin mount in Canada balsam. Canada balsam is not, strictly speaking, soluble in alcohol, but is converted by it into a white condition, therefore the plate and thin section attached to it, is placed in alcohol, and in a few hours the section is easily detached without fracture, but is coated with the altered balsam, every particle of which must be removed with a clean camel-hair pencil, kept constantly wet with spirit; if this is not done, the specimen will be messy and muddled when mounted. When quite clean it may be placed in alcohol till the specimens are to be mounted. The reason why the section is not put in some complete solvent of balsam, is that, by so doing, we avoid the very thing we should have brought about, *i. e.*, to mount our section without the highly refractive balsam rendering it invisible, and that is why the alcohol is recommended. If the sections are desired to be transparent some solvent of balsam, oil of turpentine

is good, till it becomes quite clear, if left under a bell glass. Then chloroform can be used and followed with not very thin balsam. To mount sections after embedding in the colophony resin, which if desired can be used even up to the proportion of ten parts of the resin to one of wax; and if the sections are damaged and not likely to hold together, the colophonium need not be dissolved, as when pure it is little inferior to Canada balsam. In this case the slide should be warmed very gently, or some drops of chloroform run over it before the cover-glass is put on.

Method: (1.) Saw a piece off a tooth or bone (held in a vice), rub it flat on a fine file; polish the flat surface on a fine hone, water-of-Ayr stone being preferable.

(2.) Fasten the section on to a piece of plate-glass, one inch square, with a cement made by melting six parts of button "lac" with one part Venice turpentine.

(3.) File the section down moderately thin, and then reduce further on the water-of-Ayr stone, examining under a low power from time to time.

(4.) Soak the section off with strong methylated spirit, or alcohol; wash *thoroughly* in clean spirit, and dry between tissue, which if desired may be placed between blotting paper.

(5.) Make a thin solution of white shellac in spirit, filter and keep in a stoppered bottle. Dip the section in this solution, drain, and lay on a cold plate under a bell-glass. In about half an hour it will be dry.

(6.) Mount in cold Canada balsam in benzole in preference to hard balsam, in order to avoid heating the section, as that would give it a tendency to curl; but as the melting point of shellac is higher than balsam, the latter may be used if thought desirable.

Gysi (Alfred) (I.) recommends a freshly-extracted tooth be ground down with a coarse corundum-wheel to a pretty thin lamella, according as a transverse or longitudinal section is desired; grind the section (one-side) evenly on a fine stone, polish on the same side on leather, coated with some fine polishing powder, till no rags are visible anywhere. Then cement the thin section polished side down on a glass slide, with some thick Canada balsam; heat very slightly, and firmly press the lamella

against the glass, around the section cement some exceedingly thin pieces of covering glasses. It is convenient to cement on the other side of the glass a piece of burnt cork, by which to manage the slide during the grinding process. Now grind the section by hand on a fine and perfectly flat stone until all the thin covering glasses are evenly touched, ensuring a uniform thinness of section. Remove the cover glass pieces and grind the section still thinner, when thin enough it usually detaches itself. All this grinding must be done with water on a water-stone, then polish it on this newly ground side. The thin section is now washed in alcohol and every particle of polishing powder is brushed off with a fine camel's hair pencil, and again, wash in several changes of alcohol to ensure thorough cleanliness, and place in absolute alcohol for five minutes or more to remove every trace of water, then transfer to oil of cloves to clear it, and mount in Canada balsam. In my experience the clove oil renders the section liable to curl up, and to obviate this difficulty the sections may be placed, when clean, from the ordinary alcohol or even dilute, and place it in oil of cajeput or bergamot, though I prefer the former, this renders it unnecessary to pass the section through absolute alcohol or clearing with oil of cloves, as they may be mounted directly from the cajeput oil in ordinary balsam, dissolved in either benzole or chloroform. The Canada balsam may, if desired, after evaporation to glassy hardness in the ordinary way, be dissolved in oil of cajeput, in place of the usual solvents, as benzole, chloroform, xylol, etc. Gysi (I.) recommends Canada balsam, styrax or monobromide of naphthaline.

Preparations of enamel may be stained in the same manner as dentine.

Mounting Teeth in Balsam.—There are several ways of doing this: (1.) Plunge the section for a moment in white shellac and quickly withdraw it. The alcohol evaporates, leaving the porous structure completely *occluded* and protected from the balsam, however liquid it might be. (2.) Remove the section from the alcohol, let it dry protected from the dust, when nearly dry, soak well in distilled water to fill the tubules, lamellæ, and

canaliculi with water; then dry its surfaces by wiping with a clean warm finger so that all moisture is taken from them, when the section may be mounted in rather firm balsam, without the structure being destroyed.

By either method specimens of abnormal dental histology may be satisfactorily preserved.

(3.) A simple way to mount any histological specimens is to place a slip or glass slide on a mounting card so as to center it, on the slip place a drop of Canada balsam, spread it evenly with a needle over the surface likely to be covered by the cover glass. On a lifter draw the section from the clearing agent, drain off the superfluous and place the edge of the lifter on the glass slide in such a way that when the section is drawn from it, it will lie over the center of the slide. Then take a clean cover glass with a pair of cover glass forceps and on its edge, put a drop of Canada balsam, invert the cover and place the balsamed edge against the glass slide at an angle of about forty five degrees and *very* gently lower the cover glass into place by drawing the forceps when almost parallel to the glass slide. Avoid pressing down with needles weights etc; as the cover will be brought to its natural place by the evaporation of the balsam solvent.

When dry, the slides are ready to ring with Hollis' Glue or some other varnish.

[TO BE CONTINUED.]

"Recurrence of Decay."

J. G. TEMPLETON.

Read before the Northern Ohio Dental Association, Pittsburgh, Pa.

The great Hebrew poet once said in his haste that all men were liars, but if he were now living he might take his time, and say deliberately that most, if not all dentists fail to prevent recurrence of decay in the teeth of all for whom they operate. The latter is a plain statement of facts, however much we may dislike to see our best operations undermined by the dissolving of

the lime salts of a tooth, or acknowledge that we have not exercised sufficient care to make contour fillings that will stand the test as "Before Decay's effacing fingers Had swept the lines where Beauty lingers." The occurrence of recurrent caries may be brought about by neglect to observe hygienic care of the teeth after operations for their preservation. Such a class of clients, of course, always expect their dentist to control the laws of nature. We will here mention a few of the causes of recurrent decay, viz: zymotic diseases, impaired nutrition, gestation and lactation and careless and imperfect manipulation by dentists.

A zymotic or exanthematous disease is one in which "there is some morbid principle acting on the organism similar to a ferment," and includes all eruptive fevers and cutaneous diseases, the teeth being affected on account of their connection with, or being a part of the tegumentary or dermal system.

That the teeth are likely to decay when the nutritive functions of the system are impaired, goes without saying.

In gestation and lactation the mother's system is so largely drawn upon by the increased demand for the phosphate of lime that the teeth fail to receive their accustomed supply. Hence, in the teeth of such of our patrons we find new solutions of continuity and recurrence in proximity to fillings.

Recurrence is very often due to lack of care or thoroughness where most needed. Such places are the cervical walls, particularly in bicuspid and molars, also the side of the cavity next to the operator. Special attention must be given these points, both in the preparation of the cavity and in packing the gold, otherwise there will be imperfect adaptation of the filling with the walls, leaving small spaces. However minute these spaces may be they will be sufficient to permit the ingress of moisture and recurrence will ensue.

Great care is likewise to be observed in packing gold against the walls of any part of the cavity to prevent the point of the plugger from coming in contact with the tooth structure.

The cervical wall should be covered with heavy tin foil and condensed or packed down with smooth-pointed instruments,

thus securing the best adaptation, and also the preservative qualities of tin at the point most likely to be attacked.

Approximal cavities of bicuspid and molars should be prepared so that there will be no contact of tooth surfaces after the fillings are finished.

Our duty is to do all we can to prevent, and yet we can not control the laws of nature because *change* is written on her face. Hence, oft times we'll see where least desired or expected the "Recurrence of Decay."

Recurrence of Decay.

BY F. S. WHITSLAR.

Read Before the Northern Ohio Dental Association.

There is no topic in the realm of dentistry that has continued to excite the scientific interest of dentists more than caries or decay of the teeth. The different theories which have been held and promulgated concerning the origin of dental decay, proves that the problem is no easy one. Among the more important causes which have been assigned for the decay of the teeth, we note the following:

Inflammation, electrolytic decomposition, chemical dissolution, disturbances of nutrition, chemico-parasitic influences.

Bödecker, Heitzmann and Frank Abbot, in their contributions to dental literature, have strenuously advocated the inflammatory theory of decay.

Bridgman, whose treatise won the prize offered by the Odontological Society of Great Britain for the best essay on dental decay, advocated the electrical theory of decay.

Berdmore, who in 1771, by experiments, discovered the action of acids on the teeth, advocated the chemical theory of decay, and up to the present time, perhaps no theory of dental decay has had the approbation of so large a number of able and distinguished odontologists as the chemical, of these the following may be named:

Becker, Magitot Wedl, Tomes, Schlenker, Watt and Taft.

PARASITIC THEORY OF DENTAL DECAY.

Of this theory Dr. Sudduth says: "Dr. Miller's theory of the formation of cavities by the action of a digestive ferment upon the basis-substance of dentine, has been the only theory ever advanced that explains the formation of cavities."

Ad. Weil writes: "Decay generally begins from without, and must therefore first make its way through the enamel cuticle. I regard it as highly probable that this fungus (*Lepthothrix buccalis*) bores directly through it. The fungi now proceed farther into the enamel and force apart its prisms, gradually breaking up its structure."

Dr. Pierce writes: "I am a firm believer that dental caries cannot progress without these low forms of life."

Black maintains that the chemico-parasitic theory, without a reasonable doubt, gives the true explanation of the etiology of dental caries.

Having thus briefly noticed some of the theories advocated, it is worthy of note that all agree that there is the predisposing as well as the exciting cause of dental decay.

As our subject, "Recurrence of Decay," involves a consideration of both, your attention is directed to the following as some of the predisposing causes of recurrence of decay: Inherited idiosyncrasies, faulty nutrition at the time of development, by reason of which the relative proportions of organic and inorganic material needed for an enduring structure fail to be supplied. Crowded and irregular position, broad, grinding surfaces in contact, and broad triangular spaces intervening at the necks of the teeth, which furnish deposits for foreign matter; a want of thoroughness in removing diseased structure in the preparation of cavities, sometimes the result of color-blindness, sometimes to spare the patient the excessive pain accompanying the operation, or perhaps because the patient cannot or will not bear the pain. Sometimes for the sake of our backs we decide that a difficult cavity is ready to fill, when a careful examination of it, after wiping out the cavity with a pledget of cotton or spunk saturated with carbolic acid, might still reveal soft points. Improperly

shaped margins, especially at the cervical border, fractured walls, excessive malleting on teeth of soft structure, overlapping and rough margins of fillings, are some of the predisposing causes of recurrence of decay, some of which invite the action of exciting causes of decay. Another cause of recurrence of decay is a lack of repeated, thorough, systematic cleansing of the oral cavity and the teeth, thereby reducing the amount of fermentable substances as to materially diminish the production of acid, which is most active in the nascent state.

The Lecture and the Lesson.

BY PROFESSOR C. M. WRIGHT, D.D.S., CINCINNATI, O.

Every reader of medical and dental periodical journals for a few years past, will have come to the conclusion that an opinion against the efficacy of the lecture system of teaching in our colleges has been steadily gaining ground. "The lecture system a failure" is like a party cry, and teachers, students, writers, and others, are gradually accepting the motto, without perhaps, serious thought upon the subject. The lecture system belongs to the past, it is claimed, and may have been well enough when the art of printing was in its infancy, before text-books became so common and so easily obtained. Again we hear that before books were published on a subject, the teacher's ideas and thoughts were only to be had in his lecture rooms, while now that knowledge is not an individual possession, and the mass of knowledge has been arranged in printed volumes, the student can acquire this by reading and by private study easier than by listening to a teacher, who may repeat only what may be found in the books. The teacher has no copyright on his lectures now, &c., &c. These are among the prominent reasons which seem to influence the general thought, and which are responsible for the gradual but steady change in the popular opinion. There may be other reasons, more particular and individual, which have helped the opposition; such as the kind of lectures inflicted upon the students, the dullness of lecturers, in style and thought, the

inaptness of the student in the art of taking notes, the difficulty of following, by after study all the points given by the lecturer, the student not having time nor access to all the works on the subject, from which the professor has drawn his reason for the statements which he may make in his lecture. These are all legitimate reasons against the lecture system. Are they, however, sufficient to warrant the abandonment of a method that has for hundreds of years been in vogue, and that is so intimately associated with the knowledge and progress of to-day? Shall we cast away the ladder by which our father's climbed to the wisdom which they bequeathed to us, the same ladder by which we have advanced still higher, and to a point where we boast of our attainments? Shall we risk another and narrower, and more elementary method for our children, without very substantial reasons therefor? The opponents of the lecture have only the text book to offer in its stead, and in medical science we all know that text books can hardly keep pace with the facts and theories of the day. The advocates of the modern method lay great stress upon *recitation* on the part of the student. This practice is a necessity with the text-book lesson plan—and is often dispensed with where the lecture system prevails—but the lecture should not be confounded with the recitation, for in many colleges, medical and dental, the “quiz” is an established custom, and is conducted regularly either by the professor or by an appointed “quiz-master.” Neither party denies the value of recitation on the part of the student, therefore there is no danger of this practice becoming obsolete.

Personal experiences in *methods* vary according to character and disposition of experimenters, even when all agree as to the final object of the methods—but I should like to offer the results of my own experience in teaching one branch of medical science, viz., physiology: For years the lecture and “quiz” had been the accepted method of teaching in this department of the Ohio College of Dental Surgery. Last year, owing to the reasons which I have stated in the beginning of this paper, I abandoned the lecture altogether and adopted the text-book system, in both junior and senior classes. Regular lessons were

assigned and students were called upon by name to answer questions on the lessons of the day. The lecture room was turned into a school room, the young men were turned into school boys. They carried their books to and from school like boys; they studied so many pages for each lesson of the particular text-book adopted, and if a question was proposed by the teacher which referred to a subject intimately related to the one studied for that day, but not included between page — and page —, (the lesson for that day) the student immediately answered “’Tisn’t in the lesson;” “We haven’t got to that yet,” &c. The teacher felt somewhat hampered by the lesson of the day. He was handicapped by the text-book, for to the student’s mind everything was unimportant, that was not where he could put his finger on it in his book. The whole tendency of the method was to bind both teacher and pupil fast to one text-book. Where is the single text-book on any subject that the intelligent teacher is willing to swallow whole, or stick to, without even the privilege that the preacher has of expressing his individual views about the text of holy writ?

This narrowing and confining of the subject within certain limits, this restraint upon the teacher, who has felt at liberty to browse upon all text-books, all periodical literature, all sciences, for his points and illustrations, is an objection which presents itself with force to the mind of the teacher himself.

This, I am well aware, would not be an argument in favor of the lecture which could not be answered by a single question, viz.: Is it for the pleasure or benefit of the teacher, or for the benefit of the pupil that methods of instruction are adopted? Now let us turn our attention to the student. Does he get as much from the pages of one text-book as he would from a lecture, illustrated, simplified, made forcible by repetitions, by anecdote, and impressed upon him by the living words of a live teacher? Does the student not lose something of value when he has not the opportunity of acquiring habits of attention to spoken words and habits of note-taking. Is it a fact that clear perceptions are more easily or more surely made by impressions of printed words upon the retina than by impressions of vocal

sounds upon the end organs of the special sense of hearing? As a matter of fact, can we not rather assert that both stimulations of the perception are valuable, and that one cannot be discarded without the loss of power, especially where numbers of minds are concerned?

Personally, from past experience in the lecture room with classes of dental students, and from last year's experiment with the text-book lesson plan, I feel convinced that neither method exclusively followed, will attain the best results. That a combination of the *lecture* and the *lesson* will more nearly meet the requirements.

I should then advise, as worthy of trial, the following plan (subject to variations to meet individual views): First, the adoption of a text-book, and the assigning of regular lessons. These lessons to be learned by the student, who must be prepared to recite them when called upon.

Second: A lecture upon the same subject at another regular meeting, reviewing, condensing, illustrative, explaining, etc., in character, during which the student is expected to take notes, which will form a part of his text book, or which he may regard as a work of reference.

Thirdly: Reviewing recitations, when the student can reproduce from memory the images he has taken so much pains to impress upon the gray cells of this part of his cerebrum—by the study of his text-book and his note-book.

There are psychological and physiological reasons for this method—this combination of methods—which I shall not now take the time to discuss, but which will appeal to all, when we remember the structure and functions of the special sense organs and their relation to the brain, and when we consider the *modus operandi* of the mind in relation to knowledge.

“Dental journalism, therefore, found the springs of its birth in a desire to supplement the early meagre college training and has ever since drawn its life from the veins of a profession to which it relates as a post-graduate course.”

DR. L. ASHLEY FAUGHT.

A Dentist and La Grippe.

BY C. M. WRIGHT, D.D.S.

I feel better to-day, and before any other mystery appears, I want to describe for the benefit of science how *la grippe* strikes a dentist. There are synthetical philosophers and analytical philosophers in the ranks of scientists, — whichever can make the best use of a fact-hunter will be the most interested in this case. *La grippe* is a queer disease, and is not yet, I believe, accredited to its proper place in pathology. One week ago I was a healthy-looking, well preserved, prime conditioned subject for life insurance. The agents of our best local and foreign companies were my most attentive friends. At any time of the day that I happened to look out of my window, a raised hat, a bow and a smile greeted me from an insurance agent. To-day, even in my apparent convalescence, three prominent undertakers bowed to my window from across the street. The past week has made me a man of far larger, broader, wider, deeper experience in the domain of misery than I ever was before. I owe this experience to “a *modified grip*.” I have had no catarrhal symptoms in the respiratory tract at all. No influenza, no out-fluenza, — nothing of the sort. But I have received sudden grabs from mighty hands with a hundred fingers, about my intestines, and as soon as I protested by groans, the hand let go of the intestines, and I received terrific blows (throbbing, pulsating, death-dealing blows,) on my head, fore and aft. The blows were quick and sharp, but seemed to come from a mallet in the hands of a gold-beater, and struck me in the occipital and in the supra-orbital regions at the same time. A distinguished professor of the healing art, and a prominent member of the faculty of the Ohio Medical College of this city had named my disease, and had prescribed salicylate of soda, one drachm to the ounce of water, to be taken in teaspoonful doses every four hours. I had taken four or five doses when the mallet symptom appeared. In the agony of the moment mustard plasters to the nape of my neck, hot water foot-baths, &c., were applied, without medical

advice. As soon as I became composed enough I got down an old edition of Bartholow, and read up on salicylate of soda, and came to the conclusion that as I had never taken salicylate of soda before, and had never had such frightful symptoms before, that some connection existed between the disease and the medicine. I seized upon the word "delirium" in Bartholow's description of the physiological action of the medicine, and was sure that I was on the verge of the insanity which ends in suicide. I remembered all the accounts of suicide from grip that I had cursorily read in the daily papers, and wondered if they had all taken salicylate of soda. That day's paper told of the suicide of a "prominent physician during an attack of la grippe," and I thought perhaps the same horrible thumping in the cranium of a prominent physician would induce suicide, while in the cranium of an obscure dentist it would only produce *sheol*. The persistent aching of the head between the attacks of the man with the club, the sickening vertigo which came over me like waves on the high seas, the pains through my heart, and the numbness of the general skeletal muscles which attended so faithfully, made me doubt the professor's diagnosis, and set up one for myself. Instead of la grippe I am afflicted with *recurrent apoplexy*, complicated with angina pectoris and locomotor ataxia, assisted occasionally by asphyxia, during which I have peculiar stimulations of the localized spot, in the grey matter of my cerebrum on which all the past impressions of my life had been registered. I see the vision of my past life before me, the bloody face of the boy that I knocked down a cellar on Fourth street thirty-five years ago is staring at me—the tears of a maiden whose heart I was said to have broken thirty-years ago blind my eyes now (I drove her to matrimony with a Pearl street merchant), the unkempt condition of my family monument in Spring Grove Cemetery waves before my swimming eyesight; my eyeballs feel like hot eggs in their sockets). Oh! here's that fellow with the mallet!

* * * * *

The pain has assumed a plum color. Is pain sometimes represented by color? In my case it has distinctly a rich purplish

plum color which I see plainly, situated in the back of my head. Is this simply *la grippe*? Would you kindly give me the address of the best sanitarium.

Translation—Stomatitis.

BY DR. MARIE PIERRE.

Translated from the French by M. V. del Valle, U. of M. Dental Class, 1891.

The diseases of the mouth are very frequent. Placed at the orifice of the digestive tract, the mouth takes its part in all the perturbations that affect the different parts of this canal, it is moreover subject to special indispositions coming from functions of its own. Its physiological role is the more important for it serves deglutition, respiration and the articulation of sounds. The saliva which is abundantly furnished by six glands, during mastication, three at each side (paroted, submaxillary and sublingual) convert the oral cavity in a sort of stomach, making the foods suffer a primary incomplete digestion, but that prepares and makes easier the assimilation that later will be carried on in the stomach and circulatory apparatus. The mouth is lastly the site of gustation and is liable as much as the fingers to get wounded in the performance of its functions.

In good state of health the lips are rosy and fresh, sweet and voluptuous, the gums hard, shiny and smooth, encircling the teeth in a frame of coral; the breath is inodorous, but it is going too far to require with the poet from a healthy mouth, a sweet and perfumed breath, as the intoxicating emanations of a rose.

The health of the mouth is not only a question of æsthetics but more; of the good estate of this organ depend the good performance of the digestive tract, and very often of the general health. The modern science little caring for the poetry of the mouth, show it to us as a true nest of microbes, and these invincible organisms searching only for the occasion to attempt continually to our existance.

We are to study to-day simple stomatitis, *i. e.*, the numerous inflammations of this mucous membrane that lines the mouth with its rosy tissue. We shall leave aside the stomatitis produced by wounds and destroyed teeth, that which comes from certain eruptive and inflammatory diseases, as variole, scarlatina, typhoid fever, etc., and all secondary stomatitis. We will endeavor to take up the primitive stomatitis, which we will divide into two heads, stomatitis of external cause, and stomatitis of internal cause. Placed at the entrance of the digestive canal, and subjected to more or less irritant action of gases, vapors, alimentary substances, medicaments, and of all that is taken either to the stomach or lungs, it is natural that when these substances are introduced, regardless of their action, they will congest the mucous membranes of the mouth. Strong vinegar, pepper, alcohol will inflame the mouth, certain acids and certain salts will produce scars. The kermes and vitiated tartar in contact with the buccal mucous membranes produce, an injection of the mucous membranes, the color of which varies from dark red to the violet, and may provoke thrush.

Sugar itself may cause in certain persons painful stomatitis and aphthous eruptions. It is probable that sugar in this case is converted into lactic acid in coming in contact with the mucous membranes of the mouth. There are yet two more different kinds of stomatitis of external cause which are very common; the stomatitis of smokers and that of the glass workers.

Under the action of the hot smoke the smoker inhales, the mucous membranes of the mouth is the site of erythema, and very often we find it affected to a great extent.

The stomatitis of glass workers has for cause the practice of blowing. This kind of stomatitis is generally well localized. It can be noticed in the mucous membranes of the mouth of glass workers, two opal-like plates, situated in the inside of the cheek, about the middle of the face, they are called professional plates. In old working men about glass factories, these plates are no more opal-like, but they take the aspect of false membranes, wrinkled and having sometimes the size of a five francs coin.

All these different kinds of stomatitis of external cause are

characterized by an exasperating pain, sensibility to heat and cold, the contact of food and movements of mastication. The mouth feels hot, dry and pasty-like, the breath is offensive, taste is bad, but it can be easily remedied by emollient gargles, mouth washes of sodium borate and the tablets and potions of chlorate of potash.

The stomatitis of internal cause are most always due to derangements of the digestive organs.

In individuals subject to constipation, a lack of system or a simple cold, is manifested in the mucous membranes of the mouth, which becomes red and tumefied, the mouth feels hot and dry, but with no pain. This indisposition yields readily to a mild regimen, milk, green vegetables, vichy water at meal times, laxatives and cooling refreshments.

The stomatitis of dentition, more frequent with very young infants, is accompanied with diarrhœ, vomits, etc. It is necessary not to neglect this kind of stomatitis, because the troubles about the digestive canal will be exaggerated. It would be well to wash the mouth frequently with warm water, and apply the following liquid to the gums:

R. Glycerine, 15 grammes.

Potassium Bromide, 5 centigrammes.

Cocaine Chlorhydrate, 10 centigrammes.

The stomatitis produced by eruption of the third molar or the wisdom tooth is particularly painful and persistent. It is distinguished by sharp neuralgic pains irradiating upon the side of the face and forming ulcerations of the tongue and gums. This kind of stomatitis is treated by large emollient poultices on the cheeks, but frequent it is necessary to take the molar out, and sometimes to do this, a portion of the alveolar ridge must be forced out with the knife.

Cold produces sometimes a stomatitis, said to be pultaceous in character, because of the whitish coating very frequently found covering the mucous membranes of the mouth and the tongue. The dryness of the mouth and constrained deglutition, common symptoms in all stomatitis are still more pronounced in this form, which can be readily cured by washes of peroxide of hydrogen.

The stomatitis diphtheria and the stomatitis ulcerative, the two last forms are easily noticed because the symptoms preceeding them are of such a character as to indicate a serious trouble, two or three days of intense fever, fatigue, etc. Both are caused by dampness, cold and bad nourishment. They are not of serious character, but they bring with them marked trouble in the digestive functions.

In the stomatitis diphtheria, so called because the mucous membrane of the mouth is covered by false membranes, similar in appearance to those found in diphtheria, the treatment consists in raising up with the forceps, these false membranes and touch the parts with boracic acid or the juice of a lemon.

The stomatitis ulcerosa is characterized by ulcerations which frequently only affect but one side of the mouth and with preference the left. The evolutions of the ulcerations are as follows; There is already a plaque projecting out of violet color which does not take long to soften, now the pulpy and grayish surface detaches itself and leaves uncovered a ready, bleeding ulcer, with irregular edges. From the fifteenth to the seventeenth day the work of reparation begins and cicatrization takes place. It is more painful than serious, the cure is rapid, the application of chalk to the ulcers is many a time sufficient. It is necessary though to combat depression by giving the patient small doses of quinine.

It is then shown that stomatitis has nothing of a serious character, it is dependent upon local troubles or general causes, which is necessary to arrest to bring about a cure.

To much prudence cannot be exercised in the use of gargarisms and mouth washes; the alum and chlorate of potash should be used as little as possible as they are the principal agents of caries of the teeth. It is better to suffer from stomatitis, which a hygienic condition of the mouth can cure, than to injure the teeth so frail. It is non-scientific to endeavor to remedy a malady by producing some other trouble of worst character.

There were over thirty-one hundred students at the various colleges of dentistry of this country for the sessions of 1890-91.

SELECTIONS.

Odontological Society of England.—“ Ready Contours and Crowns Made of Amalgam.”

MR. HENRI WEISS—FOR DR. J. ARKOVY, OF BUDA-PESTH.

The best writers and practitioners had adopted contour filling. Gold was maintained to be the best material for the purpose, and no doubt it was in general; but taking into account the various conditions of approximal cavities in premolars and molars, which more frequently want contouring than front teeth, it might be conceded that contour fillings of gold were very rarely indicated in back teeth; first, because of the invariable absence of wall strength; secondly, the proximity of the cervix; thirdly, the impossibility of control while annealing the first quarter of the gold. To these arguments might be added the effective, and for the case valuable, indication of combined fillings, where gold had to be shelved as a noncombinable material in favor of amalgam. Providing, therefore, that amalgam could be used for shaping the lost part of the crown, apart from the saving of time, the foregoing reasons pointed to it as better than gold for contouring back teeth. These considerations had suggested to Dr. Arkovy the possibility of a ready made amalgam crown (or partial crown) being serviceable for the purpose. The premolars and molars which Dr. Arkovy had the pleasure of introducing to the profession, and which might be obtained of the dental depots, were made after natural teeth, and possess the precise morphological shape required for crown work, or, cut into segments, for contours. The directions for use were as follows:—(1.) Take impression, and bite from the prepared tooth, and selecting the anatomically suitable amalgam crown, have it fitted in the laboratory to the model, somewhat lower than articulation requires. If one part of the crown is wanted, have it cut by a thin saw, and filed as required, then let the inner part be provided with retaining pits or deep under-cuts. Time hardens, and air has no

deteriorating effects upon the crowns. (2.) When starting the stopping, put the crown or contour into chloroform, in order to get rid of any fat that might possibly adhere. The amalgam for the filling being prepared, take a small quantity of it, to which add one small drop of mercury, and rub in with a polisher upon the surface furnished with under-cuts. Fill the amalgam into the cavity with or without rubber dam to the level of the edges, covering them as well. Put the amalgam crown, or contour, upon the filling, push the piece with the fore-fingers several times in the labio-lingual direction until it attains its proper position. No hard pressure should be exerted on the contours, their body being too weak, but entire crowns should be pressed firmly. Then polish, and if the rubber dam is in use remove it *very carefully*. In order to keep the contour or crown in position, a small piece of leather paper should now be introduced between it and the approximal surface of the next tooth. For entire upper crowns it is advisable to cautiously drill through the crown fissure, for the amalgam filling will more easily keep it in place and counteract its dropping before setting ensues. Special care should be taken to exclude moisture, to leave no space between the piece and tooth, and to save the work from unnecessary movement. After the lapse of four, preferably five, hours for setting, finishing may be effected with lava strips drawn through the interspace upon the cervical part. Polish with circular brush dipped first into alcohol and then in pumice stone powder. Patients should be dissuaded from masticating on that side for two or three days. Any preparation of amalgam may be used, but if copper amalgam, eight hours would be required for setting.

Dr. J. F. W. Silk, M.D., read a paper entitled :

“OBSERVATIONS ON BROMIDE OF ETHYL IN DENTAL SURGERY.”

In America, on the Continent, and especially in Germany, the drug had been held in high repute by dental surgeons for some time past, but in this country there were no records of its systematic employment in a similar manner. At the outset Dr. Silk wished to disclaim any advocacy of the indiscriminate use of the bromide or any suggestion that it was an entirely satisfactory substitute for the other dental anæsthetics. He had endeavored to impar-

tially record his table of cases, and he desired to be equally impartial in his remarks, so that each might form his own opinion as to whether the drug was worthy of a more extended trial. Bromide of ethyl seemed first to have been used as an anæsthetic by Nunneley, of Leeds, in 1849, and again brought forward by him in 1865. Some years later its use was advocated by Turnbull, and by Levis in America. For its introduction into dental work Dr. Silk believes Schneider, of Berlin, and Hertz, of Vienna, were responsible. As to its properties, without entering minutely into the subject, care should be taken that when bromide of ethyl ($C_2H_5Br.$) was asked for, the chemist did not supply bromide of ethylene ($C_2H_4Br.$), the substitution of which had led to fatal results. Merck's preparation was almost universally used in Germany, and notwithstanding a leading English chemist's assurance of the purity of some English preparations, Dr. Silk strongly favored Merck's. Variations in effect might be partly, or even entirely, due to the decomposition which the drug undergoes by keeping. As to the cost, where any number of administrations are undertaken, it might be said to be very little more than half the cost of nitrous oxide per patient. It would seem that robust and healthy males tolerate the drug better than weak anæmic females or children. The amount of the dose would vary *inter alia* with the method of administration, *e. g.*, in the first seven cases with the open or semi-open method 70 minims to 3 drachms were required. With the closed method $1\frac{1}{2}$ drachms had usually proved ample, and in many instances 1 drachm had sufficed. He would be inclined to put the dose down at from 1 drachm to $1\frac{1}{2}$ drachm. Being not altogether satisfied with the inhaler used in the first seven cases Dr. Silk adopted an ordinary Ormsby's inhaler, upon which the drug is poured through the face-piece on to the sponge and it is then fitted to the face; little or no air is admitted for the first few inhalations, after which the cap of the air-hole is slightly turned. The induction of anæsthesia with this inhaler averaged 66.8 seconds, and the duration 46.2 seconds—half as long again as with nitrous oxide. The average of induction was based upon the observation of twenty, and the average of duration upon twenty-eight cases.

Roughly, the duration of anæsthesia bears some relation to the time required for induction, but this is by no means absolute, and with the English preparations of the drug the variability is very marked. When the time from the commencement of the inhalation to the end of the anæsthesia exceeds two minutes the after-effects are likely to be bad. The question "How do you know when a proper degree of anæsthesia has been produced?" is not so simply answered as might seem. In Berlin some stress seemed to be laid upon the muscular relaxation, but Dr. Silk had not found this at all reliable. He generally removed the face-piece when the faintest stertor was heard, or if that were obviously due to accidental causes, or unduly delayed, the commencing weakness of the pulse or the development of conjunctival insensibility were his guides. The stertor referred to is not the laryngeal stertor of nitrous oxide narcosis, but of a much lighter and regular kind originating probably in the palate. During the course of the inhalation it would probably be found that the breathing becomes slightly slower and shallower, but in the majority of cases these changes are almost inappreciable. Dr. Silk had never been able to detect any irregularity in the rhythm, nor, as a general rule, had any cough, laryngeal spasm, or bronchial irritation been set up. These remarks apply only to the methods of dental anæsthesia, and were not applicable to the effects produced when the anæsthesia is prolonged for longer periods. There could be no doubt, in his opinion, that the cardiovascular, or circulatory system is much disturbed during the inhalation of bromide of ethyl. The primary flushing of the face is, he believed, a pretty constant phenomenon, though it might be but momentary in its duration. This effect is very similar to that produced by nitrite of amyl, and might possibly be explained in the same way, *i. e.*, arterial dilatation with consequent fall of blood pressure. This fall might, no doubt, to a certain extent, in itself account for the diminution in force and increased frequency of the heart-beat as observed at the radial pulse. It was, however, highly probable that other factors are at work for the flushing quickly succeeds a pallor, and the heart's action tends to become more feeble, slower and irregular.

Dr. Silk thought upon the whole that his sphygmographic tracings (exhibited) bore out the views he had put forward in respect to the effects of the bromide on the circulatory system, especially if it be remembered that the heart's action immediately before the inhalation is probably unduly accelerated by the nervous condition of the patient. One set of tracings he regarded as particularly interesting as indicating the rapidity with which the blood pressure, etc., is restored. This rapid recovery is, he thought, usual and is of great importance.

As to the effect of the drug upon the nervous system, and through it upon the muscular system, the exceedingly transient character of the stage of excitement was striking, in the majority of cases it had been almost inappreciable. This observation seemed to apply almost equally to the nervous woman and the robust. It might possibly serve as an indication for the class of cases in which the use of the drug is more particularly appropriate. Occasionally very slight spasm of the fingers, or rhythmic movement of the limbs, etc. were exhibited, but Dr. Silk had never observed any thing like the degree of spasm and movement which often accompanies nitrous oxide or ether. In respect to other phenomena he had not much to say. The pupils tend to dilate. Increase in the salivary secretions was sufficiently marked in four cases to attract attention, but never so copious as with ether. In some few instances patients would make a groaning noise from the beginning of the inhalation, but this had always been ignored and did not either delay or shorten the narcosis. The anæsthesia which had resulted from the use of the drug had, to Dr. Silk's mind, always been quite satisfactory both in degree and in kind.

After-effects might be divided into immediate and remote. Of the former Dr. Silk had definite notes in thirty-nine instances. In eleven a certain amount of hysteria resulted, in ten others more or less depression or prostration occurred. In one actual fainting ensued, but the patient was subject to what she termed "fainting fits." Actual sickness was noted in two cases, and in seven others nausea was complained of. Slight and transient degrees of exhilaration were developed in three instances, and in

many cases a certain amount of confusion of the intellect had remained for some few minutes. By the use of printed post-cards rough estimates of remote effects had been obtained in forty-five instances. Of these forty-five, in no fewer than twenty-nine, the return was to the effect that the patients were perfectly well on their return home and for the remainder of the day. Prostration or depression was noted in five instances, vomiting in two and headache in three. In one case the return was, "ill all day," but the nature of the illness Dr. Silk was not able to ascertain. Possibly it might have been simple hysteria. Of the remaining five cases dizziness, drowsiness, and other very trivial and doubtful complaints were recorded. As to the relation between immediate and remote effects, from seventeen tabulated observations of both, it was gathered that the importance and severity of the remote symptoms were tolerably proportionate with the immediate after-effects. Thus simple hysteria had seldom been followed by any thing worse, while on the other hand, nausea might be followed by sickness, or the sickness might be prolonged. This somewhat negative evidence was of importance for it enabled Dr. Silk to say, so far as his own limited experience was concerned, that he had never met with a case in which serious symptoms had developed upwards of twelve hours after the bromide had been inhaled. Such cases had, however, been described. With reference to the death-rate and dangers of bromide of ethyl, while aware of the importance of the point, he could not help thinking that the fatalities which had been hitherto recorded rather tended to exaggerate the danger of the drug when used in dental surgery in the way he had described.—*Dental Record*.

"THERE is law and order pervading every part of the jaw, a wise design being apparent in the arrangement of the teeth and jaws in consonance not only with the laws of geometry, physics and mechanics, but according to the most approved methods of modern science for the economy of force."

ROBT. M. SOLOMONS, D.D.S., Charleston, S. C.

Dietetic Progress.

Astronomy means the laws of the stars; gastronomy means the laws of the gullet. A grand dinner is a complicated affair, and has only been evolved by ages of civilization and culture. Primitive races eat whatever they can get and whenever they can get it. Nomadic tribes, with flocks and herds, establish regular needs, and discover the oldest gastronomic combination, bread and meat. The peasantry of civilized nations combine dishes together to make the "square meal," say meat, potatoes and a relish with bread and butter. Cultured people gradually come to add two courses to this "square meal," one at the end called dessert to help digestion; the other at the beginning, the preliminary course or *gusto*, to whet the appetite. In a state of still higher refinement each of these two courses falls into two parts. The "after-meal" comprises pastry and dessert; the "mid-meal" meat and game; the "preliminary meal" soup and fish. But the height is reached in the grand symposium or banquet of nine courses: 1, *hors d'œuvre*; 2, *potage*; 3, *releve*; 4 ———; 5, *entree*; 6, *roti*; 7, *entremett*; 8, *sucree*; 9, *dessert*. Nine courses exclusive of punches and coffee! Nine meals in one! *Après nous le deluge*—indigestion, gout and biliousness; exit the cook, enter the doctor.—*Exchange*.

Hypnotism in Public Forbidden.

The first official suppression of a public hypnotic entertainment in this country occurred in Cincinnati, where the Health Commissioner, Dr. J. W. Prendergast, advised the licensing authorities of that city that hypnotic exhibitions should be forbidden.

Dr. Prendergast takes the ground that the indiscriminate application of hypnotism is in a large proportion of cases injurious to the mental health of the subjects. The Common Council has interdicted these exhibitions, and adopted an ordinance making them a misdemeanor.

Constituents of Food.

The amount of solid matter in the different kinds of food used should be kept in mind as completely as possible. The following table exhibits the proportion of solid matter and water in 100 parts each of the following articles of diet :

ARTICLES.	Solid Matter.	Water.	ARTICLES.	Solid Matter.	Water.
Wheat.....	87	13	Pork.....	24	76
Peas.....	87	13	Codfish.....	21	79
Rice.....	86	14	Blood	20	80
Beans.....	86	14	Trout.....	19	81
Rye.....	86	14	Apples	18	82
Corn	86	14	Pears.....	16	84
Oat-meal.....	74	26	Carrots.....	13	87
Wheat-bread	51	49	Beats.....	13	87
Mutton	29	71	Milk	13	87
Chicken.....	27	73	Oysters.....	13	87
Lean beef.....	26	74	Cabbage.....	8	92
Eggs	26	74	Turnips.....	7	93
Veal.	25	75	Watermellon.....	5	95
Potatoes	25	75	Cucumber.....	3	97

Why Carbolic Acid Should be Discarded by Dentists.

1. Because of its deleterious action on the pulp; oil of cloves is preferable to carbolic acid.
2. As a root canal dressing it is, because of its great solubility in water, not to be depended upon.
3. It is not a chemical disinfectant when brought in contact with sulphuretted hydrogen.
4. When it comes in contact with dentine it is absolutely useless.
5. Its beneficial action is only temporary.
6. Unless combined with oils it is valueless.
7. As an agent for injection it is without value if there are fine roots that hold fragments of pulp.
8. It does not possess embalming properties.

DR. A. W. HARLAN.

Oat Meal.

A strong, hearty, baggage-man who could, with apparent ease, elevate a modern Saratoga trunk, was recently the object of the most intense admiration of a boy of nine, whose greatest ambition is to be strong and who would rather be John Sullivan than President Harrison. Thinking it a good opportunity for an object lesson in eating (as this boy was not what he should be in this line), we asked this Hercules, in the presence of the boy, what he ate to make him so strong. Oatmeal, was the reply; a good, big dish of it every morning for breakfast; there is nothing better, he added, and being cheap, it is within the reach of all, even the poorest. The practical knowledge of this strong baggageman is corroborated by science, and we would that well-cooked oat meal was even more freely used than it is.—[*Annals of Hygiene*.]

Mummies.

The great age of mummy-making in Egypt lasted about 2,700 years, and it is estimated that there are buried in Egypt more than 400,000,000 mummies, or about eighty times the present population of the Nile Valley. It took a long time to make a mummy, and the most approved methods required about 75 days. In the first place, it took 16 days to clean the body. Then 20 days more for salting and bitumenizing it. It required from 30 to 35 days for the splicing and bandaging, and the bandages were all made of linen. This linen was in strips from three to four inches wide, and it took at least a thousand yards to clothe the mummy. Every toe and every finger had to be wrapped up separately, and it took an experienced man to do the work. The mummy business of Egypt was thus on a large scale and there were great mummy factories, some of which had from 500 to 600 corpses on hand at a time. They had a way of marking each corpse with indelible ink, so that there was no danger of mixing them up, and the institutions were run on business principles. Each had a number of painters and gilders connected with it, and the

work was divided among a number of different classes each of which had a specialty. The bandages were put on with gum, and the making of the coffins to contain the mummies was quite a business. It was in fact so expensive to have a good coffin that only the richest could afford it, and the poorer were buried without coffins. The paupers of the land, were in many cases, merely covered with a mineral pitch, and in others their bodies were dried and salted instead of being embalmed. Artificial eyes were put into many of the mummies, and silver gloves or finger stalls were put on their fingers to keep the nails in place. After the intestines were taken out of the body the interior was cleansed with palm wine, and it was then filled with spices.

In the above estimate of the number of mummies in Egypt only the years between 2000 B. C. and 700 A. D. are taken. The fact is that there were mummies made as far back as 3800 B. C. and there is an estimate by one antiquarian that the number of mummies in Egypt is 731,000,000. Taking the mummified animals, the number would be still larger, for you find lots of mummy dogs and mummy cats in Egypt, and a boatload or so of mummy cats were lately carried to England from Alexandria to be used as fertilizing material. FRANK G. CARPENTER.

Rights and Lefts.

Dr. Louis Jobert has published a work on the cause and frequency of left handedness. No purely left-handed race has ever been discovered, although there seems to be a difference in different tribes. Seventy per cent. of the inhabitants of the Pendjab use the left hand by preference, and the greater number of the Hottentots and Bushmen of South Africa use the left hand in preference to the right. Dr. Marro, as a result of his study of criminals, has found that from 14 to 22 per cent. of those who have been convicted of crime were left-handed, the highest ratio among people of all classes being only nine in the hundred.—*[Exchange.*

Food Products and Their Chief Adulterants.

Food Product.	Adulterant.
Milk.....	Water, removal of cream, addition of oleo oil or lard to skimmed milk.
Butter.....	Water, salt, foreign fats, artificial coloring matter.
Cheese	Lard, oleo-oil, cotton-seed oil.
Olive Oil.....	Cotton-seed and other vegetable oils.
Beer	Artificial glucose, malt and hop substitutes, sodium bicarbonate, salt, antiseptics.
Syrup.....	Artificial glucose.
Honey	Artificial glucose, cane sugar.
Confectionery	Artificial glucose, starch, artificial essences, poisonous pigments, terra alba, gypsom
Wines, liquors.....	Water, spirits, artificial coloring matter, burnt sugar, etc.
Vinegar.....	Water, other mineral or organic acid.
Flour, bread.....	Other meals, alum.
Bakers' chemicals...	Starch, alum.
Spices	Flour, starches of various kinds, tumeric.
Coca and Chocolate.	Sugar, starch, flour.
Coffee.....	Chicory, peas, beans, rye, corn, wheat, coloring matter.
Tea.....	Exhausted tea-leaves, foreign leaves, tannin, indigo, Prussian blue, tumeric, gypsom, soap-stone, sand.
Canned goods.....	Metallic poisons.
Pickles.....	Salts of copper.

Cures for Neuralgia of the Head.

An English physician has recently asserted that headaches and neuralgia could be stopped by blowing a solution of salt up the nose. Whew !

CORRESPONDENCE.

A Communication from the Dental Protective Association of the United States.

DEAR SIR:—

The enclosed is a brief review and summary of the recent litigation of the International Tooth Crown Company vs. Edward S. Gaylord et al, recently ended by a unanimous decision from all the Judges of the Supreme Court of the United States, in which the Richmond Crown patent and Richmond patent on Preparation of Roots for Crowns, were declared invalid. This is the case that the Dental Protective Association of the United States took up and defended in the Supreme Court, in association with, and at the request of Dr. Northrop's committee. I will state that by the result of this decision all forms of Richmond Crowns are now open to the dental profession for manufacture and free use, as well as the Richmond method or process for preparing roots for his crowns, which was a patent for freezing and cutting off the tooth and driving the pulp out and immediately filling the end of the root at one operation. The decision of the court occupies a number of printed pages, but in substance is as follows :

FIRST. That what Richmond had done before the taking out of his crown patents disclosed substantially whatever invention there was in his crown, or process of making, and this invention had been in successful use over two years before being patented, consequently had been dedicated to the public. Some later changes in construction were made the claim for sustaining the patent ; the claim being that only after these changes were made was the invention a success, that it was in use only as an experiment before, to which the Court said :

SECOND. That whatever changes were made as appearing in these patents, from what existed before and was known to modern dentists, was not invention in the eye of the patent law but simply the mechanical skill of a skillful dentist.

While this decision is of incalculable value to the dental profession it must not be forgotten that the decision does not end, by any manner or means, the litigation between the International Tooth Crown Company and the dental profession. That company owns some twenty-five or thirty other patents relating to dentistry, some of these being in suit. One of these patents known to the profession as the "Low Bridge" was sustained in Judge Wallace's United States Court in the Southern District in New York some four or five years ago, and before the Dental Protective Association of the United States was organized. And the Dental Protective Association is now engaged in an extended and expensive contest in the Federal Courts to secure its defeat and to have the same judicial declaration of invalidity declared against it by the United States Courts as has just been obtained upon the cases referred to.

We stated in our former circular that any one not a member of the association before May 15th, if sued after that date on the Richmond Crown Patents would not receive the defence of the association, but as we have wiped out the Richmond Crown patents, this limit to membership is removed and any one not a member can still have an opportunity of joining. We feel justified in saying that it is asking but a little of each one to send in the ten dollars membership fee, and to do their part in this great work, which is so well begun, of freeing us from bondage. The next great battle which we now have with the enemy is defeating them in suits brought upon the Low Bridge Patent which will be made the basis of another circular and communication with full information, within a short time.

Hoping for a favorable response from each one, I remain,
Yours truly, J. N. CROUSE, Chairman.

"Disuse is a predisposing cause of decay in the teeth. In my practice I have always advised my patients, where they had teeth decaying rapidly, to eat their food as dry as possible, to masticate it thoroughly, and to give the teeth as much use as they could, and that little advice to my patients has been of great assistance to me and of very great advantage to the patients themselves."

PROF. C. N. PIERCE.

MEETINGS--NOTICE.

National Association of Boards of Dental Examiners.

The National Association of Boards of Dental Examiners will hold its annual meeting at Saratoga Springs, N. Y., on Monday August 3, 1891, at 10 a. m.

It is important that the Board of every State in the Union, that has a law regulating the practice of Dentistry, be as fully represented as possible. This Association has immense responsibility and it ought to have the benefit of the wisest and most discreet counsel possible. It is hoped that every Board having membership in this body will be represented and that those that have not yet become members will certainly do so at this meeting.

Matters of great interest and importance will come before the meeting.

J. H. MARTINDALE, Sec'y.

Minneapolis, May 5, 1891.

National Association of Dental Faculties.

The eighth annual meeting of the National Association of Dental Faculties will be held at Saratoga Springs, New York, on Saturday August 1st, 1891, at 10 o'clock a. m.

Applications for membership must be in the hands of the Executive Committee, Dr. J. Taft, Chairman, sixty days prior to the meeting.

Each delegate must be a member of the teaching faculty in the College he represents, and bring a certificate signed by the President (or Dean) and Secretary of his College, stating that he is authorized to act for them.

Delegates must be in attendance promptly at 10 A. M. on the day of meeting, in order that all the business may be concluded before the meeting of the American Dental Association, August 4th.

J. D. PATTERSON, Sec'y,

Keith & Perry Building,

Kansas City, Mo.

Missouri State Dental Association.

LOUISIANA, Mo., July 7, 8, 9 and 10, 1891.

PARTIAL PROGRAMME.—PAPERS.

1. Dr. J. F. McWilliams, Mexico—"President's Address to State Association." Discussion opened by Dr. J. B. Newby, St. Louis.

2. Dr. J. D. Patterson, Kansas City—"Medication in the Treatment of Pulp Canals." Discussion opened by Dr. Theo. Stanley, Kansas City.

3. Dr. B. Q. Stevens, Hannibal—"The Preparation of the Mouth and Plate Work." Discussion opened by Dr. Wm. N. Morrison, St. Louis.

4. Dr. Frank Slater, Rich Hill—"The Devitalization and Removal of Tooth Pulp." Discussion opened by Dr. J. E. Crozier, Lee's Summit.

5. Dr. D. J. McMillen, Kansas City—"Crown and Bridge Work—Use and Abuse of Same." Discussion opened by Dr. T. M. Nickolson, Fayette.

6. Dr. A. H. Fuller, St. Louis—"Preparation of Cavities." Discussion opened by Dr. H. S. Lowry, Kansas City.

7. Dr. Wm. H. Eames, St. Louis—"Review of Dr. Miller's Work, with Personal Observation." Discussion opened by Dr.

8. Dr. Geo. L. Shepard, Sedalia—"Dental Fees." Discussion opened by Dr. L. A. Young, Neosho.

9. Dr. J. M. Austin, St. Joseph—"Report on New Appliances." Dr. A. J. Prosser, St. Louis—"Report on Clinics."

10. Dr. I. D. Pearce, Kansas City—"General Anæsthetics in Relation to Oral Surgery." Discussion opened by Dr. L. E. Day, Nevada.

11. Dr. E. E. Shattuck, Kansas City—"Regulating Appliances." Discussion opened by Dr. W. L. Reed, Mexico.

CLINICS.

1. Dr. J. D. Patterson, Kansas City—"Pulp Canal Filling."

2. Dr. J. Stephen Coyle, St. Louis—"Open-faced Crowns."

3. Dr. J. F. Hassell, Lexington—"Soft Gold Filling."

4. Dr. E. E. Shattuck, Kansas City, will exhibit "Regulating Appliances."

5. Dr. N. W. Pence, St. Louis—"Gold Filling, operator doing his own malleting."

6. Dr. R. R. Vaughan, Fulton—"Copper Amalgam, will also exhibit Bridge Work."

7. Dr. D. J. McMillen, Kansas City—"Soft Gold Filling."

8. Dr. B. Q. Stevens, Hannibal—"Amalgam Filling, to demonstrate packing and finishing. Will exhibit dies for striking up Face Teeth for Plate Work—Combination Fillings—Pulp Canal Impressions."

9. Dr. J. T. Fry, Moberly—"Compound Gold Filling."

10. Dr. J. B. Vernon, St. Louis—"Bicuspid Crown, Porcelain Face."

11. Dr. T. B. Carr, Stanberry—"Extracting."

12. Dr. E. B. Crane, California—"The Crane Vulcanizer, and a new method of moulding Rubber Plates. Will also show plates made the old way."

13. Dr. W. H. Buckley, Liberty—"Small Bridge Richmond Crown Attachments."

14. Dr. Geo. A. McMillen, Alton, Ills—"Will show the best Foot Blow Pipe for country dentists—those who have no Gas."

15. Dr. W. M. Carter, Sedalia—"Gold Filling, using Williams' Crystalloid Gold No. 3."

16. Dr. Wm. N. Morrison, St. Louis—"Lining Cavities with Gold and Platinum Folds, for Amalgam Fillings."

17. Dr. Wm. H. Eames, St. Louis—"New Form of Bridge Work, Teeth placed in position after Bridge is completed."

18. Dr. A. J. McDonald, Kansas City—"Open Faced Bicuspids for Bridge Work."

19. Dr. A. C. Griggs, Warrensburg—"Cleft Plate Appliances."

The usual railroad rates will be given, a fare and a third on the certificate plan. Be sure to get your receipt at starting point.

Hotel rates, \$1.00 and \$1.50 a day. A cordial invitation is extended to all reputable dentists; come and take part.

Dental depots will be represented. Electrical motors and appliances will be exhibited. Those having new appliances should send them to Dr. J. M. Austin, St. Joseph, Mo.

WM. CONRAD. HENRY FISHER. J. M. WHIPPLE.	}	Executive Committee.
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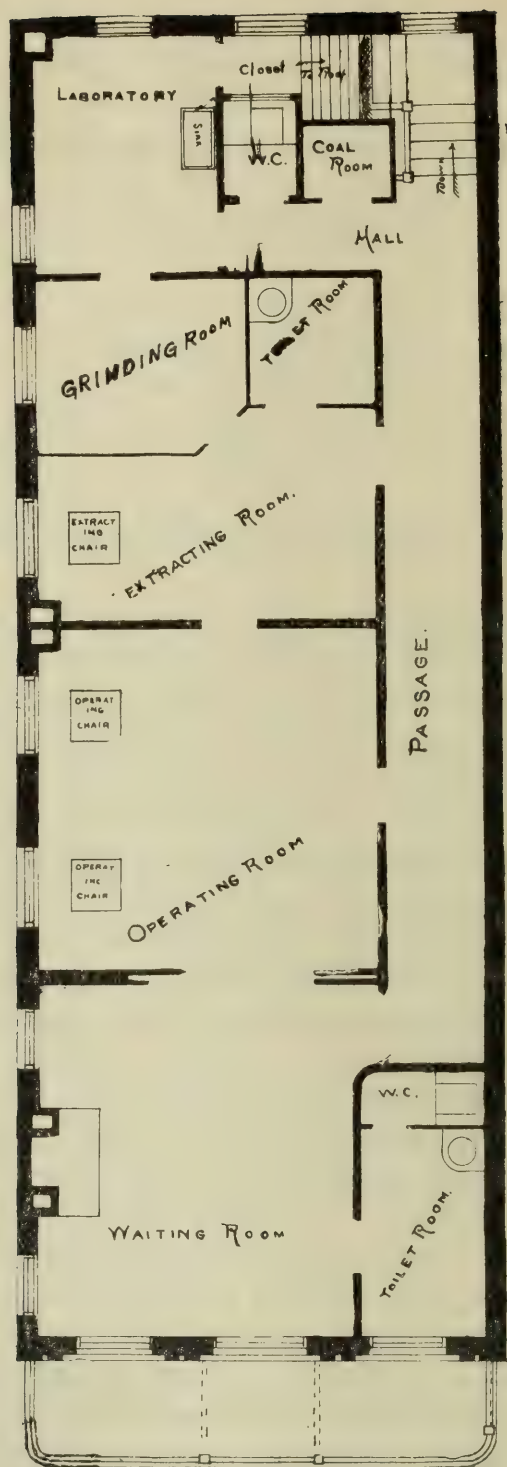
EDITORIAL.

Dental Offices.

We present to our readers this month a new feature in dental journalism.

One of the many difficulties that beset the dentist is, how to arrange the office. For the many younger members of the profession, and older ones too, the REGISTER is taking steps to bring to the notice of its readers practical examples of how to arrange an office, by publishing the plans of such offices as will bring in a variety of arrangements. The reader can then form his judgment as to which plan and arrangement he would prefer. In the beginning, however, we wish to state in justice to all whose plans may appear, that under no circumstances has the REGISTER been solicited to publish these plans, but on the contrary, all plans have been solicited by the editors, and this is no scheme to bring any one into notoriety.

We present in this issue the office of Dr. Mason Chapman, of Akron, Ohio. This office is located on one of the principle thoroughfares of Akron, and was built several years ago. It is a well finished, two-story brick structure with appropriate stone trimmings, and is located on a corner facing north, whilst the side faces the east. The first floor is occupied by a merchant for business purposes, and the entire second floor is arranged as an office. The entrance to the office is easy, by two sets of stairs, approached from the eastern side, thence proceeding through a well lighted hallway to the reception room at the northern end. As may be seen from the plan, the reception room is large and



See description on next page.

commodious; it is finished with natural wood and an elegant fireplace lends attraction to the remaining part of the well decorated walls. Dr. Chapman has wisely arranged here a toilet room and closet, essentials of every dental office. The large veranda is another attractive feature in warm weather for waiting patients. The operating room is separated from the reception room by large folding doors and at this door heavy curtains are draped. The operating room is large and commodious and contains two operating chairs. Separated from this by a solid door is the extracting room with all necessary appliances, including a lounge for sick patients and near by a toilet room for the use of patients. Separated by a high partition is the grinding room with lathe for grinding teeth and a large window giving good light to work by. All the windows are of extra width and height. The laboratory includes a water-closet and coal room and a good sink. As will be seen by the plan all the rooms have entrance to the hallway which leads to the stairway thence the street. This hall is well lighted by a large stained glass window inserted at the southern end of the building opposite the hall.

This constitutes a brief description of Dr. Chapman's office, and it must go without saying, that such an office is tastefully and well furnished with carpets and furniture. To Dr. Chapman's credit too, it may be said for the benefit of younger men, that by strict attention to business and honesty he has accumulated enough from his dental practice to furnish him with an office that any dentist might well be proud of. Dr. Chapman is widely known throughout northern and eastern Ohio and is a consistent and regular practitioner of dentistry.

W.

Michigan Meeting.

We are quite inclined to call special attention to the following notice of the Secretary of the Michigan State Dental Association. That body will hold its annual meeting, as will be seen, at Sault Ste Marie, Michigan. This place was selected at the last annual meeting because of the many attractions there at this time of the year. It affords a most agreeable and pleasant refuge from the

great heat and oppressiveness of the more southern portions of the country, and in addition to this there are many things of very great interest to visit and see. We have no doubt there will be a large number in attendance. The trip will be a very pleasant one indeed, and will undoubtedly be made from Detroit by boat which will constitute a most delightful excursion.

For particulars inquire of the secretary or any officer of the society.

MICHIGAN DENTAL ASSOCIATION.—The thirty-sixth annual meeting of the Michigan Dental Association will be held at Sault Ste Marie, Mich., August 18th, 19th and 20th, 1891.

J. WARD HOUSE, Secretary.

GRAND RAPIDS, MICH.

Obituary.

Died, at his home in Philadelphia, Wednesday, May 27th, Dr. James W. White, President of the S. S. White Dental Manufacturing Co., and Editor of the *Dental Cosmos*, in the 65 year of his age.

Dr. White was born in Bucks county, Pa., in 1826. He had resided in Philadelphia since his boyhood, and graduated in medicine many years ago, but never practiced medicine as a vocation, but only for study and as an aid to his charitable work. He was the senior member of the firm of Hance Bros. & White, manufacturing chemists, and president of the largest enterprise of its class in the world, the S. S. White Dental Manufacturing Company, which employs more than 600 men and women in its several establishments, and with which he was identified for over forty years. His practical philanthropic work was large, but was done quietly and unassumingly.

Dr. White received his degree of M.D. from the University of Pennsylvania. The honorary degree of D.D.S. was conferred on him by the Pennsylvania College of Dental Surgery, and the degree of A.M. by the St. Lawrence University, of Canton, N. Y. For many years he was editor of *Dental Cosmos*.

In addition to his connection with the firms named he was a director of the German-American Title and Trust Company.

Dr. White married at Philadelphia, October 28, 1847, Mary Ann, daughter of James and Maria McClaranan. He leaves, besides his widow, three sons, Dr. J. William White, Professor of Clinical Surgery at the University of Pennsylvania; Samuel S. White, of the firm of Patterson & White, printers, and Louis P. White, wholesale jeweler.

Dr. White was a man of strong convictions and courageous in upholding his opinions. He was pre-eminently unselfish; personal sacrifice was to him a pleasure if it promoted the good of others. His relations with his employes were of the most kindly and pleasant nature. From the highest to the lowest in the great establishment of which he was the executive head, the feeling towards him among those employed was that of sincere friendship, and in his death they mourn a friend whose hand and counsel were always at their call.

The following details regarding his death have been made known by the family: In the winter he had a severe attack of a somewhat obscure trouble which was diagnosed as rheumatism of the throat. From this he recovered slowly, but its effects were gradually wearing away. Tuesday he complained somewhat of an uncomfortable feeling about the heart, but continued to attend to his duties, and was at the office throughout the day. Yesterday morning on arising he spoke of feeling "dyspeptic," and shortly afterwards, while adjusting his shoes, fell forward, dying in a few moments. Dr. W. D. Robinson was hastily summoned, but the end had come before he reached the house.

Dr. White was a member of the Universalist Church, and gave a large share of his time, money and talents to helping the poor and unfortunate of his city. He was a modest man, yet a man of the deepest convictions on moral subjects, and his earnest endeavors to be and do and have others do right have compelled him to take positions before the public that required great force of character to maintain. The profession is somewhat familiar with the controversy he, as president of the great dental supply house, was compelled to engage in with some of the eastern den-

tists, and no one, however he may differ from Dr. White, will say that he did not maintain his position with dignity and honor.

The profession is greatly indebted to Dr. White for, not only his interest in the welfare of the profession, but for his frequent contributions to its literature, and for what, as far as the dental profession perhaps is concerned, will be his monument, commemorating his life in its behalf, namely, *The Dental Cosmos*, a journal that represents the best there is in dental literature and is more widely read than any other professional journal. To his diligence and wisdom the *Cosmos* has lived up to its motto of "observe, compare, reflect and record," and the dental profession is the gainer. We all honor and revere his noble life, and most deeply sympathize with his bereaved kindred. H.

THE faculty of the Dental College of the University of Michigan adopted the following minute in regard to the death of Fred E. Spencer, of the class of '93. To Mr. E. R. Spencer, Dowagiac, Michigan.

Dear Sir:—The faculty of the college of Dental Surgery of the University of Michigan, wishes to express to you the sense of loss it has sustained by the death of your son, Mr. Fred E. Spencer of the class of 1893. His gentle bearing, his studiousness, his constant effort to excell made him not only a leader in a class containing so many kindred spirits, but a great helper to his instructors as well.

The faculty desires to express its heartfelt sympathy to you in this great affliction that we know you have sustained in his death.

Signed, J. TAFT, DEAN.

N. S. HOFF, Secretary.

DIED, in Chicago March 20th, 1891, of pneumonia, Dr. E. R. E. Carpenter in his fifty-ninth year.

Dr. Carpenter was born in Providence R. I., May 4th, 1832. He began the practice of dentistry in Chicago in 1860, where he devoted nearly all his professional life, he attained a very high reputation as an operator. He possessed a warm liberal hearted nature that was admired by all who knew him.

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COMMUNICATIONS.

Preparation of Cavities, and How to Fill Them.

BY DR. D. R. JENNINGS, CLEVELAND, O.

Read at a meeting of the Cleveland, Ohio, Dental Society, June 18th, 1891.

The subject that I am to present is one that can hardly be touched but you will say that some one has said something similar. Therefore, if I say something that you have heard, don't accuse me of plagiarizing. There is so much to be said on this subject that I am fearful that I can not tell it so that you will understand why I think there are so many failures, and so very few successes. It is always very much easier to preach than to practice and it is particularly so in this case.

The straw that I am about to thrash may not yield any thing very great, but in my observations during thirty years of continued practice, I have seen quite a large amount where the flail was not used quite as much as it should have been.

My subject is the Preparations of Cavities and How to Fill Them. (Seems to me I hear the whisper going around the room, "Chestnuts.") The present time I think is given too much to the prophylactic instead of what we actually have to do. People come to us with teeth decayed and they want them saved and made useful members. They do not come to us to be told that if their grandfathers and grandmothers had lived so-and-so, and if their fathers and mothers had done so-and-so, a visit to us would not have been necessary; they come to have their teeth saved from further decay and trouble, and that is what I shall try to tell my way of doing.

The example I will use to illustrate my ideas will be the posterior proximal surface of a first, lower, left bicuspid.

Now, I don't want you for one moment to think that I am conceited enough to claim there is no way but my way. I have tried long and hard to learn some positive principle by which we can arrive at as high a degree of the certainty of success as in any other business.

It has been said that the average duration of fillings in proximal cavities in bicuspid is less than three years. Now, if that be true I do not think we can boast very much over our skill in saving teeth in that locality, and I don't undertake to dispute it if all the operations made in that locality by those calling themselves "dentists" are to be counted in the making up of the average. I think, perhaps, that locality is the hardest of all to fill successfully.

The cavity quite large—extending below the margins of the gum, covering almost the entire proximal surface, and quite close to the pulp chamber—after the dam is properly adjusted and a wedge placed between the teeth so that it will force the gum and dam below the bottom of the cavity if possible; then with mallet and chisel cut all the tooth-substance away that will be any hindrance to your seeing all the cavity; then use a diamond disk to true the walls of the tooth; then take a sharp excavator and cut all the softened dentine from the cavity; next, use sharp burrs and cut along the walls so as to have something of an anchorage, and if the walls are too frail to hold the filling cut two slots across the top of the tooth to act as supporters or anchors to the filling. Then cut the bottom of the cavity perfectly flat so that there will be no sharp edges to chip or break away when the filling is being driven to it. With another instrument cut a shallow groove quite near the pulp-chamber across the cervical wall so that in case of biting where great pressure is brought to bear on the filling, it would not allow it to break from its foundation.

Be sure to have the walls of the cavity flared enough to make a perfect contour of the tooth, and leaving no flattened space produced by the diamond disk. Have them as smooth as possi-

ble so that the gold can be packed to them with ease, without fear of fracture. Now that you have your cavity thoroughly prepared, I should use a loop-matrix—one made so that when the screw is tightened it will clasp the neck of the tooth quite closely, and with flare enough to leave the crown sufficiently contoured to finish and retain its proper shape.

Now we are ready to commence the introduction of the filling. I should first lay a mat of Robinson's Fibrous Filling in the bottom of the cavity, packing it nicely and solidly to the bottom, and adding to that No. 40 cohesive gold cut in strips about two-thirds as wide as the cavity with instruments adapted to that kind of cavity—all the time keeping the gold as nearly level as possible, always working from the center to the walls, (for the reason that gold has a tendency to curl or crawl, and if it is driven toward the walls all the time it is forced to stay there). When near the grinding surface I use lower numbers—No. 4 rolled in ropes so that I can use ovoid or oval-shaped points on my pluggers, but be sure to build up full enough to have material in abundance to finish to the natural contour of the tooth.

Then remove your matrix and with a thin burnisher burnish to the wall as well as possible the surplus or prominence of filling.

Next, take one of the thickened-rim disks and polish the cervical part of the filling to a perfect conformity with the neck of tooth. Use finishing-burrs of the right shapes and sizes to cut the grinding surface to the proper shape. Burrs are better than corundums as they are not as liable to cut the thick enamel and injure the tooth. Next, use disks of various grades of fineness until the filling is in proper shape.

Finish with cuttle-fish-bone paper disks with a little vaseline on it, and you have left a fine, dead finish.

I hope these remarks will call forth a discussion that will be beneficial to us all.

Professional ethics is a system of morals formulated out of unwritten laws that by common consent are recognized, at least, in associated life.

DR. S. B. BARTHOLOMEW.

Latest Theories of Dental Caries.

BY DR. CALHOON, OF PITTSBURGH.

Read before Pittsburgh Odontographic Society.

Before noticing specially the latest theory or theories of dental caries, perhaps it will be interesting as well as instructive, to notice briefly some of the stages through which the etiology of dental caries has passed before reaching the latest and apparently well established theory.

The authors to which we are indebted for the principle data in this paper are Drs. G. V. Black, W. D. Miller and A. Morsman. Also references from brief articles in the dental journals by different authors.

The subject of dental caries seems to have attracted the attention of ancient writers. But the works of Bourdett and Jourdain appearing about the years of 1754-1766 seem to be about the first to treat the subject from a scientific standpoint.

Mr. Fox in 1806 wrote on the subject, Mr. Bell in 1829 and Drs. Fitch and Koecker about the same time. All these writers considered decay of the teeth to be the result of inflammatory action either in the dental pulp, in its membrane or in the substance of the dentine. They supposed it to be of the same character as necrosis of bone. Koecker seems to be the first to acknowledge any chemical agency in the process and that only after inflammatory action had destroyed the life of the part.

About 1830 the inflammatory theory was attacked by a large number of intelligent dentists, the principles ones being Harris, in America; Robertson, in England and Regnard, in France.

In 1835 Robertson, of Birmingham, England, published a work in which he denied the agency of inflammation as a factor in dental caries and asserted that it was a chemical disintegration of the tooth substance caused by an acid generated by the decomposition of food or fluids of the mouth allowed to collect about the teeth.

In 1838 Regnard, of Paris, published a work taking the same

ground as Robertson, more specifically stating that the decomposition of the tooth took place at the spot at which the acid was formed.

Since Schwann, Schroeder, Lister, Koch, Klein and Miller by their careful and extensive experiments and microscopical examinations have demonstrated the agency of micro-organisms in the process of fermentation and putrefaction. It seems to be considered one of the new theories when it is only a fuller explanation of the theory advanced by Robertson and Regnard.

Dr. A. Morsman, in his papers on dental caries published in several numbers of the *Dental Cosmos*, enumerates the following:

1. The vital or inflammatory as the principle theories.
2. The chemical.
3. The chemico-vital.
4. The parasitic.
5. The chemico-parasitic.
6. The chemico-putrefactive.

Dr. W. D. Miller, in his work on micro-organisms of the human mouth, enumerates ten different theories as follows:

1. Depraved juices accumulating in the teeth.
2. Disturbances of nutrition.
3. Inflammation.
4. Worms.
5. Putrefaction.
6. Chemical dissolution.
7. Parasites.
8. Electrolytic decomposition.
9. Diverse causes.
10. Chemico-parasitic influence.

The latest theory and the one supported by Dr. Black and others and the one which seems to be fully demonstrated by Dr. Miller's experiments is the germ theory.

Many predisposing causes for dental caries are given. The principle ones probably are 1st, imperfect formation of the teeth in which we find deep sulci, pits and grooves making harbors in which the fungi of dental caries collect. Another, irregularities of the teeth, forming spaces which it is almost impossible to keep clean. Uncleanliness may also be mentioned. Others might be mentioned. These are probably the most frequent ones.

But to speak more specifically about the germ theory. By experiments it has been found that there are three kinds or species of micro-organisms or bacteria in decayed dentine. Micrococcus, bacillus and spirillum, the first being the most numerous. Also that there are three separate ferments produced by the fungi of dental caries. 1. Changing a non-fermentable

sugar into a fermentable one. 2. An acid producing ferment. 3. A peptonizing or digesting ferments.

It has also been found that the waste product of the above mentioned bacteria is principally lactic acid. In accordance with the above facts, my understanding of the germ theory is that one of the three mentioned bacteria or fungi find a lodgement in some of the harbors, where they are allowed to remain. The first process being the changing of non-fermentable substances to fermentable ones. 2. The formation of lactic acid principally, although other acids are formed, which dissolves the enamel and inorganic substance of the dentine. As the enamel prisms loosen and fall apart the fungi penetrates the enamel until the dentine is reached when its ravages are more rapid on account of there being less inorganic matter. As the bacteria penetrate the tooth they receive their food from without and their waste product being acid the inorganic matter is dissolved before them. 3. The digestive ferment dissolves the organic matter which is washed away or perhaps supplies food for the bacteria.

The different shades of color varying from white to black are accounted for by the progress of decay. The white indicating the most rapid and the black the slowest. The intermediate shades indicating the rapidity of the progress of decay.

NOVEL TREATMENT OF INGROWN TOENAIL—Dr. Puerckhauer recommends a novel, simple and at the same time competent treatment for ingrown toenail. A 40 per cent. solution of potassa is applied warm to the portion of the nail to be removed. After a few seconds the uppermost layer of the nail will be so soft that it can be scraped off with a piece of sharp-edged glass; the next layer is then moistened with the same solution and scraped off; this must be repeated until the remaining portion is as thin as a sheet of paper, when it is seized with a pincette and lifted from the underlying soft parts and severed from the other half. The operation does not require more than half an hour's time, is painless and bloodless, while the patient is delivered from his suffering without being disabled even for an hour.—*The Pittsburg Medical Review.*

Preparing Sections of Teeth for Histology and Bacteriology.

PART I.—HISTOLOGY PRACTICAL.

VIDA A. LATHAM, ANN ARBOR, MICH.

Part of a paper with additions read at the Student's Dental Society U. of M.

(Continued from page 281)

CLASS II.—SOFTENED SECTIONS.

For this purpose several reagents may be used but all seem to act by the removing of the calcarious matter and the hardening of the soft tissues of the teeth. It is most important that the last should be thoroughly well attended to or else we do not get a correct idea of the character and structural size of the elements found in the tooth. Chromic acid is the first, a $\frac{1}{6}$ th per cent. up to $\frac{1}{2}$ may be used, the former is preferable and is made by adding one gramme to 600 cc of distilled water or 15 grains to the pint, a quantity of which should be kept on hand in order to immerse a freshly extracted tooth that may be desired for examination. Tie a piece of cotton round a fresh tooth and suspend it in the fluid (1 part of spirit to 2 parts acid stir.) so as to be covered by a quantity of the solution. Where the crown of the tooth is not desired for examination it is better to saw it off at the neck so as to allow the stains and reagents to penetrate the tissues. The hardening fluid must be changed the second day and then the fifth and eighth days, the ninth day it is placed in a mixture consisting of two parts of spirit and one of water well stirred, the tenth day into pure spirit and left till desired to use. If desired to soften at the end of the eighth day a few drops of hydrochloric acid can be added to decalcify, which may be tested by passing a fine needle through the tooth, then wash well to remove the acid, then place for a day into 2 parts spirits and 1 water and the next day into ordinary spirits, on the fourth day embed and cut. To embed in parafin, a small tin or paper mould is made and some melted parafin poured into it, the tooth is quickly

dipped in and withdrawn till cool. As the parafin is now cooling, place the tooth in it near the hand of the operator and when set withdraw the needle. Place it in a cool place to harden. To prevent the object becoming displaced it should first be dipped in alcohol for some minutes in order to dry the surface thoroughly, the sections are cut with a razor and kept flooded with alcohol, and the sections floated off the knife into a capsule of the same. If desired, a mixture (by weight) of white wax and olive oil, equal parts, melt them together and pour into the embedding dishes, may be used in place of the parafine if desired.

To Embed in Gum. If the tooth is in alcohol, transfer for 6 hours into distilled water, then to a gum solution for 6 hours (made of picked gum arabic dissolved in water). Place a fair quantity of the gum on the plate of the microtome such as Cathcarts or Williams, and cool till nearly frozen. Place the tooth in position and surround with gum and let it freeze under a capsule or by means of the spray till solid but not brittle. The gum should cut like cheese. When the sections are cut transfer with a camel hair pencil from the knife to warm distilled water to dissolve out the gum. From water transfer to spirit and spread the sections out evenly. If the sections are delicate they may be transferred directly to the slide and treated with dilute spirit in situ. These may be washed with water and stained with any agent or gold chloride and subsequently dehydrated and cleared and mounted in any media.

Decalcified Sections.—Picric Acid. A saturated solution in distilled water is the safest decalcifying agent and it must be kept saturated by the addition of fresh crystals every few days. When soft enough, prick with a needle to test it and then wash well in clean water to get rid of the acid and then in weak spirit which will dissolve the acid more. Keep in pure alcohol and treat as chromic acid for embedding, cutting, &c. Sections may be double stained with picro-carmin and logwood, &c.

Muller's Fluid. This is one of the most useful hardening agents we possess. Bichromate of potash, 2 parts, sulphate of soda 1 part and water 100 parts. Put the salts into a pan and

some of the water and boil till all dissolved. Add more of the water to cool it and put in a stoppered bottle to keep. After the first few days it does not require changing, but requires a longer time to harden according to the size of the tissue and is a great advantage, as specimens are in no way harmed for the demonstration of micro-organisms. When the tissue is properly hardened, pour off the hardening agent and wash well with water to get rid of the reagent, transfer to weak spirit (2 parts spirit, 1 water, stir.) for a day or two, then into pure spirit.

Sections of Pulp. Crush a newly extracted tooth in a vice or with a hammer, and select several pieces of dentine with portions of pulp adherent to them, then immerse in staining fluid, cover with a glass capsule and leave in a warm place for a couple of days. Then pour the fluid off and wash the specimens in a solution made of strong glycerine 2 parts, distilled water 1 part, and leave for a couple of hours to soak. To enable the tissues to regain their original volume, transfer them to a solution of five drops acetic acid to 1 ounce of strong glycerine, and leave in the fluid for four days.

Another method and one recommended by Dr. Bodecker for preparing pulp tissue is to immediately place the tooth after removal from the mouth in a $\frac{1}{6}$ to a $\frac{1}{2}$ per cent. chromic acid. To this mixture add, after the third or fourth day after decalcification, a few drops of dilute hydrochloric acid. It is important to use a large quantity of the liquid and renew every 6 or 8 days. After the teeth have been hardening and decalcifying for a few weeks, the peripheral portion of the dentine will become sufficiently soft to be cut by a razor. When the hard portions of the dentine are reached by the cutting instruments, the extraction of the lime-salts must again be continued in the manner described above until the pulp cavity is reached. If care is used the tooth, especially the anterior, can be split with a strong pair of excising forceps. Then take a $\frac{1}{2}$ per cent. solution of sodium chloride in distilled water (warm) and place on the pulp and drop it without handling into the stain, carmine, logwood, fuchsin, hyperosmic acid, picro-indigo, or chloride of gold, $\frac{1}{2}$ per cent., etc.

Pulp sections, if thin, after hardening in chromic acid can if

first washed in distilled water, be stained with gold chloride, leaving the stain on the tissue for 20 to 30 minutes, when they should again be washed in distilled water and exposed to daylight. In a few hours the color of the fresh tissue changes to a bright violet color, whilst the chromic acid pulp is of a brownish violet. Osmic acid, 1 per cent. shows the contours of the constituent tissues, more especially are the nerve fibres distinct. Again both fresh and chromic acid specimens may be treated with osmic acid. Carmine is, perhaps, the best stain for pulps.

To examine the pulp, together with the enclosing dentine, the specimen is softened in chromic acid and then imbedded in celloidin or paraffin, or wax, as above described. The fresh pulps of lower incisors are the thinnest and best adapted for examining the system of blood vessels and if transferred to the slide when fresh, add some normal saline solution, cover and with careful pressure the pulps may be spread and examined.

If desired, to study *The Blood-Vessels of the Pulp*, chloroform an animal and just before respiration ceases, open the right auricle and let the vessels empty themselves; then inject with Prussian blue, warmed to a temperature of 40° C., to render the gelatine fluid and also to prevent any vascular spasm which a cold fluid is very liable to produce. Then place the head in alcohol for 24 hours to harden the injection; or if preferred in Muller's Fluid or chromic acid which is just as good and in my opinion better. The pulp, after hardening in alcohol is removed and immersed in a weak solution of chromic acid, and at the end of ten days sections of it may readily be cut and then mounted in glycerine jelly. If the animal is quite dead, you must wait till rigor mortis has passed off and inject a non-gelatinous Prussian blue, but the first injection is the best. In animals which die of strangulation the vessels will be found so gorged with blood as to render any further preparation unnecessary.

If the tissues are partially decalcified in a very weak solution of chromic acid and treated as above described, sections can be frozen, cut, stained and mounted so as to show the dentinal fibrillæ as prolongations of the odontoblasts.

I prefer to harden teeth well in Muller's then spirit and then

grind sections keeping *them wet* all the time and if wished they can, after grinding, be embedded in celloidin and decalcified in $\frac{1}{2}$ per cent. solution of chromic acid, then treated and stained as desired. A point worthy of remembrance is the dissimilarity between caries of bone and decay of teeth as the reaction is totally different when they are treated with picro-carmin.

Perenyi's Fluid. As yet I have had very little chance to thoroughly test this agent to which Dr. N. S. Hoff, of the University of Michigan, very kindly drew my attention, but it seems as if it will be a good agent, having the properties of hardening and decalcifying at the same time. The formula is, nitric acid (10 per cent.) 4 parts, alcohol 3 parts and chromic acid (0.5 per cent.) 3 parts. Mix. Leave the tooth in this agent some 4 hours or more until soft, which is facilitated if the tooth can be cut through at the neck so the agent can enter the canal. Then transfer to 70 per cent. alcohol for 24 hours, strong alcohol for some days, absolute alcohol 4 – 5 days. For ordinary tissues combine the stain with the fixing fluid. Fuchsin may be dissolved directly in the fixing solution. But eosin, purpwein, aniline violet must first be dissolved in 3 parts of alcohol, and then shaken into the liquid.

Picro carmine and borax-carmin can also be added but as a precipitate results it must be filtered and after staining pass through 50 per cent. alcohol for 5 hours, ordinary spirit 10 hours, and then into absolute alcohol. If the tissue is unstained it may, after cutting, be immersed in clove oil colored with alcoholic solution of eosin or safranin, or on the slide for 5 to 10 minutes, with a few drops of the colored oil.

Kleinenberg's fluid is also useful for decalcifying teeth.

To Clean Cover-Glasses. Take from the wool and place in a beaker, cover with strong sulphuric acid, stir to avoid all the air remaining amongst them and leave for an hour or two. Then wash WELL in *several* changes of water to get rid of the acid, and place in alcohol from which they are taken one by one and wiped dry on an old handkerchief and then polished with a chamois leather and kept for use in an air-tight box.

Retaining the Soft Parts of Bone and Teeth. Take a fresh tooth

or nearly fresh, divide *at once* with a sharp fret saw below the neck into two or three pieces "allowing distilled water to trickle over it the while," and then the reagents and stains can penetrate the pulp cavity. Place the pieces in concentrated sublimate sol. for some hours to fix the soft parts. Wash in running water for about 1 hour, then place for 12 hours in 30 per cent. spirit, change to 50 per cent., and again after a similar period to 70 per cent. To remove the black sublimate precipitate place the teeth for 12 hours in 90 per cent. spirit to which 1.5 to 2.0 per cent. tincture of iodine has been added. The iodine is afterwards removed by immersion in absolute alcohol until the teeth become white.

To Stain in Borax-Carmine either an alcohol or aqueous sol. gives the best results.

Remove the teeth from absolute alcohol to running water for 15 to 30 minutes and then place in the stain. In the watery solution of borax carmine they remain 1 or 2 days, and in the spirituous 2 or 3 days. Transfer to acidulated 70 per cent. spirit (70 per cent. spirit 100 cen. acid muriat 1.0) in which they remain, the watery ones stained require, at least 12, and the alcohol stained ones 24 to 36 hours. This done, immerse for about 15 minutes in 90 per cent. spirit and then for half an hour in absolute alcohol, after which they are transferred to some ethereal oil for 12 or more hours, then quickly wash the ethereal oil off the objects with pure xylol, and then they are passed in a solution of balsam in chloroform. The balsam (Weil 6 & 2) is prepared by drying in a water bath heated gradually up to 90° for 8 hours or more, until when cold, the mass will crack like glass on being punctured. Of this balsam so much is added to the chloroform as to make a thin solution in which, as stated above, the teeth must lie for 24 hours. Then add as much balsam to the solution as will dissolve. When no more balsam will dissolve, the teeth and a sufficiency of the balsam are poured into a vessel and heated up to 90° in a water bath until the mass, when cold, shall be as hard as glass. Let the balsam set; pick out the teeth carefully, place in a vice, and thin discs are cut from them with a fret saw, water being trickled over them the while. Mount sections in balsam chloroform.

Teeth to Show Odontoblasts in situ. Take the jaw, preferably the lower of an embryonic mammal such as a kitten or pup, and while still fresh carefully stripped of the tissues covering it except the oral epithelium and flange of gum, and place in the usual Muller solution 20 to 30 times in volume to bulk of the immersed tissue. Change the fluid every day for 4 or 5 days, and then every 3d or 4th. Then finish hardening after it has been in Muller's fluid for a fortnight—in spirit first weak, then strong, changing till no more color is seen. Vertical sections are cut by a thin sharp knife; place longitudinally on the stage of a Cathcart or William's freezing microtome and cut in the usual way. The best specimens are got in the canine and bicuspid regions for these parts are less likely to be disturbed in the manipulation processes. Imbedding in wax or paraffine or celloidin is of little service. The knife cuts quite easily the thin cap of semi-calcified dentine and bone and the elements of the pulp are in no way disturbed in their relation to each other. The odontoblasts can be separated if necessary, by separating with the point of a needle from the surface of the dentine papilla, the cap of dentine to which, in places, they adhere. (c) This method affects little, if at all, the relative positions of dentine, odontoblasts and pulp.

To Make Preparations of the Teeth of Fishes in Situ (8) it is best not to grind down sections of the teeth but to decalcify the jaw and teeth with a 5 per cent. solution of H_2CrO_4 or 10 per cent. sol. of HCl. Cut sections, stain, wash well in distilled water, dehydrate for 3 minutes in absolute alcohol, "clear" in clove oil or xanthol and mount in C. balsam. Carmine is, perhaps, the best stain for fishes teeth. If it is used, however, it is necessary before transferring to distilled water to pass the sections quickly through weak acetic acid as this "fixes" the stain. If gold chloride is used the specimens must be mounted in glycerine jelly.

It is not Necessary to Cut Sections of Enamel to Demonstrate the Prisms. 1st. Soften the enamel by immersion in 10 per cent. solution of HCl remove by means of a needle point, or fine brush a small portion to a slide; put a drop of normal salt solu-

tion on the top of the enamel and press down the cover glass. Then run a solution of carmine or orange-rubine beneath the cover glass and draw off the excess with a little blotting paper. Wash the stain away further by irrigation with a weak HCl or $\text{HC}_2\text{H}_3\text{O}_2$ and mount in this solution or acidified glycerine after Beale's plan.

Staining with Chloride of Gold. No other stain marks out so clearly the minute anatomy of the soft tissues which penetrate bone and dentine, in fact, its excellence as selective stain would long ago have been demonstrated but for the recognized textbooks speaking of the great difficulty of using it and the length of time it takes, and being only applicable to fresh tissues.

True, fresh tissues always stain faster, but teeth, and bone and indeed other tissues can be stained after having been severed from the living body for a long time, sometimes weeks. Avoid the use of metal instruments, bone, wood or quill being preferable. The use of steel does not, however, doom the staining to failure. To stain (a) wash the sections in a solution of bicarbonate of soda. (b) Put some 1 per cent. solution of gold chloride in a watch glass, test it with litmus paper, and if acid, neutralize with (c) bicarbonate of soda by drops; place sections in the solution and cover the watch glass with some lid to keep it in total darkness for from $\frac{1}{2}$ to 1 hour until the sections are straw-color.

Remove sections from staining fluid to distilled water, leave covered over (they must not be exposed to the light for more than a few seconds) for a few minutes.

(d) Put some 1 per cent. formic acid in a watch glass, float the glass on hot water, put the sections in the acid, cover them over and keep them in the dark and fairly hot until they turn crimson which is in about an hour. (e) When stained immerse the sections in cold distilled water for about $\frac{1}{2}$ an hour. (f) Dry sections and mount them in glycerine jelly. Avoid C-Balsam. Keep gold chloride bottle in the dark. (16)

Sections to show pulp (particularly hyperæmia) are difficult to make and to retain the natural injection. 1st. Catch your hare *i. e.*, capture the condition—examine a suitable case when

one is presented, note condition of the tooth itself, etc. Remember *the condition of the tooth at the moment of extraction, especially as to pain* as it is of vast importance in studying this object. Extract the tooth; place in Muller; do not handle or disturb in any way for a week, at least. Then harden; wrap the tooth in muslin and place in the jaws of a powerful vice (not one where the jaws are so weak that they will spring together on cracking the tooth, as it will crush the pulp) and steadily close them until the tooth cracks open. If skilfully done the line of fracture will be the long axis. Then place in Muller freshly filtered and carefully lift the pulp from its cavity. (Carefully do this for the dentinal fibrils will be pulled out a considerable length). Now place in a thin solution of gum arabic to which add some gum camphor, salicylic, thymol, or carbolic acid to prevent mould. *In no case must this gum be strong enough to float the pulp.* If of greater specific gravity than the pulp the tissue shrinks. Evaporate the gum arabic solution slowly to the consistence of a thick jelly. This should require 3 or 4 days to thoroughly penetrate the pulp. When the solution is hard enough to handle, the pulp is taken up (c) some mucilage placed in the position for cutting on a piece of cork afloat on alcohol with the pulp side down. In from 12 to 36 hours the surface will be hardened from the abstraction of the H_2O by alcohol. Don't let it get too hard. Invest in a microtome; use paraffin, or some suitable substance for imbedding and allow to stand 12 to 24 hours. Several sections can be cut if desired. The specimen being kept wet in alcohol all the time. Mount direct in glycerine without dissolving the mucilage, or dissolve it out in tepid distilled water stain the pulp with hæmatoxylin or fuchsin and mount in Canada Balsam.

If a tooth is extracted during a paroxysm of pain inflammation of the pulp is almost uniformly accompanied by the signs of hyperæmia, they being present in a marked degree in the immediate neighborhood of the inflammatory area; but if the tooth is extracted during a period of quiet, the hyperæmia is limited to the vessels within the inflamed area.

Celloidin. After hardening well place for 24 hours in equal

parts of ether and alcohol, transferring to a syrupy solution of celloidin, made by dissolving celloidin in a mixture of equal parts of alcohol and ether. Leave it for about 24 hours; cover the object with a thicker solution of celloidin; it is allowed to remain in it for 24 hours. Embed when ready on cork. Spread on easily a little of the celloidin solution and allow to dry. Then another coat and let dry. Now place on it the specimen as quickly as possible before the celloidin begins to harden. Now cover the whole with successive layers of the celloidin solution until the object is built up quite firm. When it has dried remove the celloidin from the glass with a sharp knife, and if necessary trim the bed to a proper size and form.

To Place on Cork. Coat the cork with celloidin solution and let it dry, (to prevent air rising from the cork). The object is now placed in its hardened matrix and mixing cell, as on the cork, by means of celloidin. Let dry in air till it retains its shape well. Drop the cork into 50 per cent. alcohol and it can usually be cut after soaking it for one hour.

For dental embryological work it is excellent.

Developing Teeth-Sections. Take the teeth that are forming in the jaws of embryos, at or nearly the time of birth, while the tissue is still warm if possible. Place in $\frac{1}{4}$ to $\frac{1}{2}$ of 1 per cent. solution of chromic acid and change daily for 3 or 4 days. The edges of the dentine that were calcified are found sufficiently softened to make a number of sections. Take the teeth from the acid solution, wash in distilled water and then place in a solution of gum arabic for several hours. Then put in a solution of alcohol to take out the water. Paraffin and wax are melted and poured into a convenient mold. When clouded with cooling, embed the tissue, and cut it until the calcified tissue is reached. Place the sections in distilled water for a few minutes to dissolve out the gum and then put in glycerine and alcohol and mount in glycerine.

For further details on Embryonic Teeth Sections see Paper on Histology of the Teeth in the *Jour. of Microscopy and Natural Science*, New Series, Vol. II, 1889, where they are given at length.

Preparing Sections of Decayed Dentine. Select a freshly extracted decayed tooth, wash out all the particles of food and break away the margins of enamel so as to expose the softened dentine as much as possible. Then with a sharp instrument cut away the decayed portion from the sound dentine, keeping the instrument *well* to the latter and we thus get a large piece of decayed dentine. Immediately freeze the tissue in gum, stain and mount.

Staining Tissues. This requires a little practice to secure good results so we will take the simplest, namely, logwood. Buy a good sample or make one from the many receipts found in all histological text books and then filter 12 or 15 drops in a watch-glass, and add a few drops of distilled water, stir well to mix the agents. Place in a few sections (the fewer and the slower the stain the better) from the spirits and let them straighten out on the stain and then gently press under the logwood, leave it for about ten minutes (the time differs in every case) and then test them by washing in *tap water*. This is about the only time we have occasion to use any other than distilled water, but the former fixes the stain the best. When deep enough and well washed to remove all precipitates, place the sections in spirit for a good ten minutes to dehydrate and then in clove oil, and then mount in Canada Balsam or what other media is prepared. All the stains are used, with only slight modifications, in a similar manner.

Picro-Carmine is a very useful stain on account of its double-staining property. Place the sections in a strong solution for from 10 to 30 minutes, then wash in acidulated water (distilled water to which 1 or 2 drops of acetic or picric acid have been added). Leave in this for 15 to 30 minutes, wash quickly in alcohol and then transfer to clove oil and mount in balsam. Some histologists are against the use of balsam as a medium and advise glycerine or Farrant's media. Logwood is a good combining stain with the above. Fuchsin is also a good stain.

Bibliography Useful to Dental Histologists.

1. Gysi, Dental Caries Under the Microscope, *Dental Cosmos*, April, 1887.

2. Weil; Zur Histologie der Zahnpulpa, 1887.
3. Miller & Underwood, Trans. Odont. Soc. of Gt. Britain, 1884, p. 222.
4. Stricker's Histology, Vol. I.
5. Abbot, *Dental Cosmos*.
6. Weil, Zeitschrift. f. Wiss. Mikr V. (1888) pp. 200-2.
7. Mummery J. H., T. Odont. Gt. Britain, XXII (1890) p. 207.
8. Hopewell-Smith W. A. *J. Br. Dental Assoc.* XI 1890. pp. 310-2.
9. Brittan W. C. DENTAL REGISTER, Vol. 41, 1887, p. 19,
10. Andrews, DENTAL REGISTER, 1887, p. 564.
11. Flexner S. DENTAL REGISTER, 1887, p. 336-341.
12. Latham V. A. *Scientific Enquirer*, Vol. I, 1887, pp. 196.
13. " " " *J. of Micro. and Natural Science N. S.* Vol. II, 1889.
14. " " " DENTAL REGISTER, Oct. '88, pp. 477. 482.
15. Dental Cosmos, Register and American System of Dentistry.
16. Underwood A. S. *J. B. Dent. Assoc.* IX, 1890, pp. 696. 697.
17. Miller W. D. Micro-organisms of the Mouth.

DR. VIRCHOW DENOUNCES KOCHISM.—The lower house of the Prussian Diet on May 9th voted 165,000 marks for Prof. Koch's institute. Professor Virchow opposed the grant and denounced Kochism, claiming that it had proved a failure. He warned the doctors who were using the lymph that they ran a great risk if they persisted in treating their patients with the alleged remedy.—*Med. Record*.

FOUR YEARS' COURSE AT THE HARVARD MEDICAL SCHOOL.—The faculty of the Harvard Medical School, at their last meeting, voted that with the class entering in September, 1892, the regular course necessary to obtain the degree of M.D. shall be four years.—*Boston Med. and Surgical Journal*.

Hygiene of the Mouth.

BY J. F. DOUGHERTY, D.D.S., CANTON, O.

Read before the Northern Ohio Dental Association at Oberlin, May 13th, 1891.

There is probably nothing in the whole range of causes, which exerts a greater influence on dentistry, than the neglect on the part of the mass of mankind, of the proper care of the teeth and mouth.

It is a surprising and shameful fact that among all grades of society there exists a woful ignorance and culpable indifference as regards the care of the teeth.

In quite a large percentage of the sufferers from deranged stomachs, neuralgia, nervous irritability, or kindred affections, the whole trouble is traceable to a neglected condition of the teeth; those organs perhaps being almost entirely hidden, and in many instances several teeth bridged over and cemented together by a thick accumulation of tartar, with a plentiful admixture of mucous, and animal and vegetable aliments, all in a state of decomposition and sending off an odor, which together with that peculiar fetor emitted by the highly congested and bleeding gums, which necessarily accompanies this condition, is sufficient to produce a breath that would do credit to a vulture that has been attending strictly to business.

Doubtless many of us are acquainted with individuals who are enthusiasts on the subject of a pure breathing medium, and who pay a great deal of attention to ventilation and sanitation generally, who at the same time are carrying about with them mouths in just such a condition as I have described, and with every inhalation take into their lungs an atmosphere as polluted as might be found in the most unsanitary habitation.

And with every ingestion of food carry into their stomachs putrefying substances dislodged from this cesspool of corruption there to continue their work of destruction.

That organs having close relationship and important physiological sympathies with the nutritive and nervous system,

should, when in badly diseased condition, cause trouble in other parts, would be but a natural consequence.

It is an established medical observation that diseases of the mouth and associate parts will often cause severe morbid action in other parts of the body.

This is often the case where teeth are badly decayed and extensive accumulations of tartar have caused marked absorption of the alveolus, loosening of the teeth and general breaking up of the dental arch.

In such cases we need not be surprised to find the whole tract of the fifth pair of nerves the seat of functional derangement. And the baneful influence which such a state of things is likely to exert on the general constitution, can be appreciated only after careful consideration.

Medical men of to-day are beginning to appreciate as they never did before the very intimate relations existing between the teeth and the entire physical organization.

The ill effects following the irritation excited by neglected teeth upon the nervous system more especially, and upon the health in general is now so thoroughly recognized by every intelligent physician, that in a great many instances when called to examine a patient the condition of the teeth is enquired into as a possible cause of disease.

If, then, a neglected condition of the teeth may be the cause of so much distress and ill health, aside from the immediate and direct discomfort, how important it is that this subject be given more attention by the dental profession than it seems to have heretofore received.

The members of our profession are supposed to be quite well informed on this and kindred subjects, and to be able when called upon to instruct their patients as to the best means of maintaining perfect cleanliness of the mouth.

But alas! how many there are who impart this instruction only when it is drawn out of them by the enquiries of some earnest seeker after the truest and best means of saving their teeth; and then it is given perhaps in a careless and apathetic manner as if it occupied a very subordinate place and was

scarcely worthy of serious consideration; satisfying themselves by stopping the ravages of decay by means of fillings, or substituting artificial teeth of one kind or another for the lost organs, never seeming to realize the truthfulness of the old adage, that "an ounce of prevention is worth a pound of cure" to the patient. To the dentist the cure is worth a great deal more than the prevention, hence too many of us dispense cure only, to the total exclusion of prevention.

This is a subject that receives too little attention and is treated too lightly by a great many members of our profession. This is not because its importance is not realized by every intelligent dentist, but because the initiatory step in bringing about a sanitary condition in some mouths is a very disagreeable operation and sometimes the conditions are such as to make it positively disgusting.

But however disagreeable it may be it is our duty to wade in. And when the task is finished it becomes our duty also to charge a fee commensurate to the disagreeableness of the operation.

This will have the good effect of impressing upon the minds of our patients the great importance of the operation, and stimulate them in their efforts to prevent the necessity of a frequent repetition of it.

A good fee would also have the tendency to spur us on to greater efforts in this good work. The lack of proper remuneration is too often the cause of indifference to this branch of our calling.

To bring about a sanitary condition of the mouth any diseased roots which can not be restored to a healthy condition and made suitable for carrying a crown should be extracted.

All deposits of tartar and other accumulations removed, all cavities filled, and the gums restored to a healthy condition by proper treatment. Even then the mouth can not be said to be in a sanitary condition unless the stomach be in a healthy state and performing its functions properly. For, with acid eructations from this organ, there is present in the mouth that enemy to sound teeth.

In dealing then with our patients on this subject it should be

firmly impressed upon their minds that the integrity of the teeth depends very materially upon the healthy functions of the stomach; for the habitually faulty performance of the digestive process causes the dissolution of the teeth through acid reactions, as well as inducing a deterioration in their structure, from not receiving sufficient nutriment from a circulating medium rendered too poor in its nutrient elements, through dyspeptic tendencies.

A short talk to our patients on dental hygiene in general is scarcely ever ill-timed and is a subject that needs no formal introduction. We might mention the influence that diet exerts on the textures and point out the fact that certain kinds of food produce certain effects on the structures, hence the importance of a judicious choice in the articles of diet.

They should be told of the pernicious effect of certain drugs on the teeth and advised as to the proper precautions to be taken in the use of them. This is a matter to which physicians give too little attention.

The injurious effects of certain articles dispensed by street fakirs and other frauds of like character, for cleaning and whitening the teeth should be warned against. They should be taught that the decomposition of particles of food lodged between and about the teeth, forms an acid which very readily acts upon their earthy constituents and causes their early breaking down, and that in perfect cleanliness lies one of the principal means of preventing their destruction.

For this purpose nothing has ever been devised that can take the place of the tooth brush.

In selecting a brush one should be chosen of medium stiffness, not too thickly set with bristles, which are of an unequal length. With a brush of this kind, the bristles will more readily find their way between the teeth and into all the fissures just where they are most needed. The brush should be used principally in the direction of the long axis of the teeth, forcing the bristles well between the teeth and drawn toward the grinding surface. This should be done on the inside as well as on the outside of the arch. The molars and especially the third should be given particular attention.

The failure to properly clean these teeth has undoubtedly much to do with the popular notion that the wisdom teeth are not worth the efforts necessary to save them.

After meals the toothpick should be used to dislodge the coarser particles of food that have become wedged between the teeth in the masticating process. As to the kind of toothpick to be used, I would recommend either the quill or wooden article. But under no circumstances metal.

Care should be exercised in the use of the toothpick to not unduly irritate or wound the gums. Considerable harm has sometimes been done in this way.

A danger, too, in the use of the wooden toothpick is the breaking off of the end between the roots of two teeth in close apposition. Its presence there for some time may produce pericementitis and the eventual loss of the tooth. Such a case as this came under my observation not long since. The loss of a sound molar was the result.

After the toothpick should come the use of the brush as described above with tepid water. This to be followed by the use of floss silk, drawing it carefully between the teeth and over the entire proximal surface of each tooth; carrying it slightly under the free margin of the gums, all the while keeping up a sawing motion, thereby to dislodge and carry from between the teeth any small particles of food that may have escaped the toothpick and brush. Finally, rinse the mouth well with tepid water. Either the pure article or some aromatic water. The latter is much used by the French and English, and is a habit that might with profit be imitated by their American cousins.

This cleansing process just described should be followed after eating, if that be a dozen times a day.

On arising in the morning brushing will suffice, but before retiring this might be supplemented by the rubbing of prepared chalk.

Would recommend the moderate use of dentifrices. Think harm is sometimes done by the immoderate use of preparations containing too much grit, together with unduly hard and improper brushing.

I have not hoped in the writing of this paper to advance any new thoughts, but simply to open a subject which through discussion may awaken in us a deeper interest in it and we thereby be brought to a fuller realization of our duties to our patients.

Word-Blindness with Unusual Features.

The following case was reported by Professor Mierzejewski at a recent meeting of the St. Petersburg Society of Psychiatry, and is given in the *Neurologisches Centralblatt* for December 15, 1890.

A physician, fifty-six years old, had had syphilis in his youth, and for several years had suffered from chronic nephritis. In January, 1890, he had an attack of uræmic coma, which lasted four or five days. He had since had two other attacks of shorter duration. Some time after the third attack, which occurred last spring, the patient noticed that he had lost the power of reading, although he could distinguish the letters easily, and his sight in general was unchanged.

Mierzejewski found the following on examination: The patient sees each individual letter clearly, but is unable to join the letters into syllables or words. He writes without difficulty and correctly whatever is dictated to him, but can not read what he had written. He can write prescriptions in due form but can not read them afterward. He can make correct copies without understanding the meaning of the words copied. Numbers, however, he can read and pronounce correctly. The patient's sight is perfect, and the fundus of the eye is normal. There is no disturbance of speech and the intelligence is unaffected. There is no change in sensation, motion, or the reflexes. After looking through the literature of the subject, Mierzejewski concludes that this is the first case of word-blindness as yet reported in which the ability to distinguish the single letters was retained, and he calls it *cæcitas syllabaris et verbalis, sed non litteralis*.—*N. Y. Med. Jour.*

PROCEEDINGS.

The Northern Ohio Dental Association.

The thirty-second annual meeting of the Northern Ohio Dental Association was held in the G. A. R. Hall, Oberlin, on Tuesday and Wednesday, May 12th and 13th, 1891.

This is the oldest organization except the Mississippi Valley Association. There are seventy-eight members in the association of which thirty-three were present. The name and residence of those in attendance is as follows:—C. R. Butler, Cleveland; Corydon Palmer, Warren; J. F. Siddall, Oberlin; F. S. Whitslar, Youngstown; W. H. Whitslar, Youngstown; Charles Buffett, Cleveland; J. E. Phelps, Chagrin Falls; Henry Barnes, Cleveland; Geo. H. Wilson, Painesville; H. F. Harvey, Cleveland; T. S. Seeley, Norwalk; G. R. Goulding, Cleveland; C. D. Peck, Sandusky; L. P. Bethel, Kent; W. H. Fowler, Painesville; F. H. Lyder, Akron; F. W. Knowlton, Akron; C. T. King, New London; F. F. Douds, Canton; J. F. Dougherty, Canton; J. H. Wible, Canton; Theo. J. Phillips, Canton; F. D. Davis, Minerva; D. S. Husted, Oberlin; H. G. Husted, Oberlin; Wm. F. Binsley, Napoleon; R. A. Dinsmore, Cleveland; W. A. Siddall, Oberlin; W. B. Connor, Akron; L. C. Kelsey, Elyria; A. W. Hazel, Elyria; Alfred Terry, Norwalk; Dr. Edson, Toledo.

Previous to the opening session of the meeting the members were escorted through the college buildings and shown every point of interest; in this way from the beginning to the end of the meeting all was business and constant attendance.

The meeting was called to order promptly at 10 A. M. by the President, Dr. F. S. Whitslar, of Youngstown. The reading of the minutes and all other business pertaining to opening a dental convention was disposed of by noon-time.

At 2 P. M. the session was opened by prayer by one of the leading ministers of the city.

The first essay on the programme was called for, and a paper on "Recurrence of Decay in Teeth," by J. G. Templeton, of Pittsburgh, was ordered read, Dr. Templeton being unable to attend. This paper was supplemented by a short paper on the same subject by Dr. F. S. Whitslar, of Youngstown. Both papers are to be found in the June REGISTER.

The discussion of the papers was opened by Dr. C. R. Butler, of Cleveland, as follows: "We are all interested in this subject because decay is the great enemy we have to fight. We can not take up the discussion of all the details of the subject because the same ground will have to be gone over that we perceive for primary decay, to a large extent. One of the many causes for recurrence of decay is the lapping over of the filling, this not having been dressed down to the margins of the cavity, a place for the lodgment of food is thus made and decomposition sets in with its consequences.

Many of the theories of decay have become obsolete. In reading the remarks of W. D. Miller, of Berlin, who is considered the best authority, the causes of decay have been settled, or his theories have been widely accepted, yet it must be admitted that there are chemical and chemico-vital forces at work as well as zymotic. As far as micro-organisms are concerned he is not willing to accept or admit that they bored into a tooth as do worms into wood, they don't work in that way. There was an attempt made in 1881 at the International Medical Congress, to show with some very beautiful slides, that micro-organisms go directly into enamel, but it is doubtful. Recurrence of decay is the great perplexity after filling teeth. There are some who say that teeth will not decay after being filled, but this is not true.

If we could manage the laws of the system to have a neutral condition of the fluids of the mouth we might, to a great extent, stop the decay of the teeth. It is retention of particles of food between the teeth, acid condition of the fluids of the mouth and vital forces depressed that cause the greatest trouble and recurrence is found most frequent. A proper system of cleansing helps much to prevent decay. There are conditions not explained

satisfactorily in which fillings have been retained for years and then the tooth structure loses its integrity and breaks down. Recurrence in that locality no one can foresee.

Dr. Geo. H. Wilson.—One feature we can not be too particular about, and that is the shaping of cavities and contour of filling. Believe in capillary attraction. The actual point of contact of two teeth is not the actual place of decay, but rather below that, where the fluids are suspended. Do away with this point and better success may be attained.

In disease and old age we see a wasting away of tooth substance. Under such circumstances it is better to explain to the patients that conditions are unfavorable and they should not expect too much as we are laboring under conditions that are against us. Believes in perfect cleanliness and contoured fillings.

Dr. C. D. Peck.—Believes in gold as a filling material, but eight years ago introduced both gold and amalgam fillings in same mouth. Amalgam remained longer than the gold fillings. Wonders why?

Dr. W. H. Fowler.—Found in his earlier experience one great cause of recurrence of decay to be in putting his gold fillings in too well—he checked the enamel in introducing the filling.

Dr. T. S. Seely.—Said he would stick to the acid theory of decay yet. Believes all have failures and that causes may be overcome by cleansing cavity thoroughly, and good filling. Don't believe case is a failure if decay recurs in eight years.

Dr. R. A. Dinsmore.—Said much depends upon the structure of the teeth. Gold is not advisable in soft teeth. Cleanliness is a valuable point.

Dr. Chas. Buffett.—Said he failed to see the force of capillary attraction because the teeth are constantly bathed in fluids. Recurrence of decay may take place next to a filling that is well put in. Inflammation of the lungs may have an effect upon the teeth. Acid conditions, especially the nascent, is most powerful upon the teeth. Antiseptic mouth washes will do much good.

Dr. Geo. H. Wilson.—Capillary attraction, to his mind, has more to do with decay than we think of. When at rest, in thin

places between the teeth, there is little chance for change, and little particles are held between the teeth unlike that upon flat surfaces.

Dr. Buffett asked, "If the mouth being constantly bathed with fluids, whether there will be capillary attraction?"

Dr. Wilson replied, "I think so."

Dr. H. F. Harvey.—Subject covers much latitude, takes in original cause, as it may be a recurrence after filling, or when decay seems to have stopped for a time. It may be recurrence or an occurrence. Contouring and also filing away may help to prevent recurrence. It is hard to draw the line between recurrence and original decay. Gestation and lactation may have much to do with decay.

Dr. Henry Barnes.—Reported having under his attention four tin fillings Dr. Atkinson put in fifty years ago. The fillings are gradually being worn away by attrition. Fillings are remarkable. He believes in capillary attraction.

Dr. Butler.—Said he did not wish the young men to think that the old members had attained that skill by which decay did not recur after their operations. Recurrence may be brought about by lack of judgment in prescribing the kind of filling to be used. Fees should have nothing to do with the case. Indifferent service given to the patient is the poorest kind of policy. Has been disgusted with men who have put gold into children's teeth when other filling material would do as well or better. Let the people understand we are masters of what we do.

Dr. T. S. Seeley.—Said it is as much of a difficulty to know what to use as to know how to put the filling in. We are tempted to do that which will bring the best remuneration.

Dr. W. H. Whitslar.—Said that one point brought out in Dr. Templeton's paper was well worth noticing, and that was, that failures in filling are most apt to occur along that margin of the cavity (lingual margin) which is next to the operator. In obscure cavities he found this point most difficult to fill always correctly. The subject was then passed.

The remaining part of the afternoon was devoted to the relation of incidents occurring during the lifetime of Dr. Wm. H.

Atkinson, with which Drs. Butler, Palmer, Buffett, Barnes and others were familiar, and concluded with an essay by Dr. J. F. Siddall, of Oberlin, whose subject was "As We Go Marching on." A part of this essay Dr. Siddall kindly consented to be published, and as it relates to Dr. Atkinson, it is of great interest and will be found in the next REGISTER.

The following was presented as the sense of the society on the deaths of

DR. WM. H. ATKINSON AND DR. JOHN STEPHAN.

By the irrevocable decree of The Ruler of the Universe the Northern Ohio Dental Association mourns the loss of one of its charter and honorary members Wm. H. Atkinson, M.D., D.D.S., having departed this life on April 2nd, 1891, in New York City.

Also, John Stephan, D.D.S., an active member who died June 25th, 1890, at Cleveland, Ohio.

In the decease of the former this society and the profession at large have lost one who was ever most keenly alive to the interests of the profession and a pioneer and leader in the science and art of dentistry.

In the death of the latter this society loses one of its most active and conscientious members.

C. R. BUTLER,
J. F. SIDDLE,
F. S. WHITSLAR,
CHAS. BUFFETT,
HENRY BARNES,
H. F. HARVEY,
Committee.

SESSION THURSDAY EVENING.

Meeting opened by President F. S. Whitslar.

An address of welcome was delivered by Prof. G. F. Wright, of Oberlin. It was a happy combination of wit and wisdom. He exhibited a mortar made of stone taken from Table mountain, out of a mine which had been run under a lava bed to the depth of 250 feet. The mortar is believed to be contemporaneous with the "Nampa Image" and the "Calveras skull" found in that

region, and said to be not less than 15,000 years old. The address was highly entertaining and was fully appreciated by the association.

Addresses of welcome were also made by President Ballantine and Ex-President Fairchild, of the college, also editor Pierce, of the *Oberlin News*.

Responses were made by Drs. F. S. Whitslar and C. R. Butler. Dr. F. S. Whitslar then read his presidential address to the association which is published in the present number of the REGISTER.

At nine o'clock the Oberlin Glee Club entered the hall and entertained them till adjournment of the first day's session.

An Anxious Doctor.

The following taken from *The Medical News*, is a letter received by an Elkhart, Ind., physician from a country doctor (?) :

"Dear dock I hav a pashant whos phisicol sines shoes that the wind-pipe has ulcerated of, and his lung have drop intoo his stumick. he is unabel to swoller and I feer his stumic tube is gon. I hav giv hym evrything without efeckt. his father is welthy, Onerable and influensihial. he is an active membber of the M. E. Chirsch and god nose I dont want to loose hym. what shall I due. ans. buy returne male.

Yours in neede."

ETHER drinking among the Poles, Finns and Swedes in the northern counties of the State of Michigan, is reported. They use the compound spirits of ether and it is generally consumed with alcohol or whisky.

ARTIFICIAL quinine is the latest discovery. M. M. Grimaux and Arnaud have realized this chemical dream and report their process as follows: The base cuprein contained in the shrub *Remijia pedunculata*, growing in Brazil, is treated with sodium then the combination thus obtained is chloride of methyl. The product is quinine absolutely identical with the substance with which we are familiar.

SELECTIONS.

Voice in Female Singers Affected by Gynecological Disorders.

BY CARL. H. VON KLEIN, A.M., M.D., OF DAYTON, O.

I am requested by a well-known ovariologist to state my observation of the voices of female singers when affected by gynecological disorders, hence the following is a brief statement of my observation.

The most difficult cases the laryngologist has to contend with are diseases of the throat caused by disturbance of the ovaries. It is a common thing to meet with cases of acute inflammation of the tonsils, larynx, pharynx and fauces in females during their menstrual period. I have observed the voice in many professional choir singers who have applied to me for treatment during the menstrual period, defective in gravity, force and timbre, producing in many cases a husky sound, as of a low, masculine order.

A laryngologist of acute hearing who will train his ear to the recognition of sounds and acquaint himself with a known voice, can detect a menstruate nine times out of ten. It is a known fact that all prima donnas try to avoid engagements during their expected period. It is a recognized fact from time immemorial that extirpation of the testicles will greatly change the voice in males. Unto this day the operation is practiced in some parts of the civilized world.

The finest male chorus I ever heard was by a band of eunuchs at the Alexandre Nefsky Church at St. Petersburg, Russia, who were prepared for that purpose. Born eunuchs, or hermaphrodites, generally have voices of feminine order, but do not make good singers on account of their sluggishness and want of animal propensities. It is said in order to make a good singer one must be in love. It is undisputable that impediment in the male organs influences the male voice, so, too, impediment in female organs influences the female voice.

In many cases of ovarian disturbance, enlargement and hypertrophy of the tonsils and of the soft palate are observed, hence the laryngologist oftentimes can accomplish but very little without the assistance of a competent gynecologist.

The Centenary of the Microscope.

It is generally thought that the invention of the microscope goes back to the close of the fifteenth century, or to be more precise, to the year 1590, when, in the city of Middleburg, in Holland, two spectacle makers, named Janssen, invented both the telescope and the microscope. This date for the invention, according to which its third centenary would arrive in 1890, does not rest on authentic documents, but is based on assertions published in 1665 by the physician, Peter Borel. He denied that Galileo, Drebbel and others deserved the credit of having invented the telescope; and in order to demonstrate that the invention of that instrument, as well as of the microscope, was due to the Janssens, produced some documents which showed that the two spectacle makers, having invented the telescope in 1590, presented a specimen of it to Prince Maurice, Stadtholder of the Netherlands, and to the Archduke Albert. Later on, however, the telescope of Prince Maurice became a microscope, in a letter of William Borelli, who declared that he had always heard in Middleburg, his native city, that the Janssens had invented these optical instruments, and further that when he was ambassador at London, in 1619, he had seen in the hands of Drebbel the identical microscope that the Janssens had presented to Prince Maurice.

Professor Govi, however, in a work which demonstrates the excellence of his judgment and his vast erudition, has collected a series of documents which not only seem to restore the merit of the invention of the microscope to Galileo, but show the various vicissitudes of the discovery itself. The first hint of the transformation of the Holland telescope into a microscope is found in a little book published in 1710 by Wodderborn, a pupil of Gali-

leo. Speaking of the wonderful qualities of the telescope, Woderborn adds, in praise of Galileo, that "with the instrument could be perfectly distinguished the organs of motion and sensibility of the smallest animalcule," so that the particular formation of multiplied eyes in very small animals could be perceived. This new application of the telescope by himself Galileo did not deny, though he never directly affirmed it. In the National Library at Paris is preserved a letter by Cannon Tarde, in which he speaks of visiting Galileo in Florence in 1614, when the latter was sick in bed. Notwithstanding, to Tarde Galileo gave ample explanation of a microscope then in his possession.

Whether the invention of the simple microscope be due to Janssen or Galileo, to Drebbel is due the merit of having produced at Rome, in 1624, the compound microscope. The difference between the two hardly needs explanation. The simple microscope magnifies with a single lens, or with several lenses so close together that they act like a single lens. The compound microscope has two or more lenses, separated by a convenient distance from each other, and which act separately. In 1669, Eustachio Divini constructed a colossal microscope which magnified 140 times. A little after Bonannus invented a horizontal microscope which magnified 300 times.

In the seventeenth century were laid the foundations of micrography, a science which, by the study of the minute anatomical elements and their functions, has made such progress under the name of histology, and been such a fertile cause of important discoveries. With the microscope Malpighi, by the minute examination of the tissues, confirmed the theories about them he had previously formed; Leuwenh ok discovered the globules of the blood and the structure of the nervous fibres; and Swammerdam dissected insects, of the most minute organs of which he gave descriptions still considered perfect.

In the eighteenth century, observes Henocque, but few modifications were made in the microscope. To mention all the improvements made in the instrument during our century would be tedious. During the last forty years enormous advances have been made in science by the aid of the microscope, of which the

usefulness has been greatly increased by the skill with which the matter to be examined is prepared, and by the aid of photography. Micro-photography dates from 1840 only; but since that date it has had an uninterrupted series of noteworthy improvements.

Besides histology created by the microscope, by which our acquaintance with the most hidden structure of organisms is constantly increasing, bacteriology, with its rapid succession of discoveries of the highest importance, owes its existence to the microscope. Those little beings, those micro-organisms, which, by the change of the medium in which their evolution is affected, can produce so much good or so much evil, and of which it takes several millions to occupy the tenth part of half an inch in space, can now be identified according to their species, notwithstanding their changeable aspect. We can estimate the rapidity of multiplication, the number, the dimensions, and the singular manner in which by dividing themselves, or by means of a sort of buds or spores, the micro-organisms reproduce themselves.

In the examination of the inorganic world the microscope has had results not less precious. The wonderful phenomena of crystallization, the exact form of the crystals, the more precise in proportion to their minuteness, the modifying properties of the light called forth by the thinnest layer of a mineral, the interior texture of rocks, all these can be studied with a precision impossible before the invention of the improved microscope, and finally not to mention all the triumphs achieved by the instrument, it has had an application which formerly would have seemed paradoxical, since the microscope has been employed to show the particulars of the nature of the surface of the planets, particulars which have been made clear by microscopic observations of instantaneous photographs.—Ernesto Mancini, *Nuova Antologia, Literary Digest*.

THE University of Bonn is stated by the correspondents of the London papers to have ordered that the use of the Koch injection shall be discontinued in all the clinical hospitals under its jurisdiction.

Measuring the Perception of Odor.

At a recent meeting of the French Academy, Secretary Berthelot exhibited a new instrument called the "olfactometer." The inventor is M. Charles Henry. The object of the apparatus is to determine the minimum rate of odoriferous vapor per cubic centimeter of atmospheric air perceptible to the human olfactory nerves. The olfactometer consists principally of a graduated glass tube which moves within a paper envelope. The tube is held to the nose and the paper gradually withdrawn. As soon as the subject of the experiment perceives the odor of the material contained within the glass tube, the latter is withdrawn, and the quantity of vapor which has escaped is calculated from the known capacity of the tube, and the degree marked by the paper envelope. The cubic space affected by the odorous vapor is simultaneously determined by means of a small areometer. The inventor of the instrument shows that the perceptibility of different odors by different subjects varied enormously, the two limits of his experiments, falling between 2 milligrams of ether per cubic centimetre, and one-thousandth of a milligram of oil of wintergreen per cubic centimetre.

COCAINE INCOMPATIBLES.—Cocaine is used in manifold mixtures, and often brought in contact with substances with which it is entirely incompatible. A. Brunner states that it is frequently prescribed with silver nitrate in ointments, when as is probably not known to the prescriber, decomposition of the hydrochloride ensues with formation of insoluble chloride of silver, and a corresponding change in the cocaine. E. Schell, in the *Els-lothr Journ. d. Pharm.*, reports that if calomel and cocaine hydrochlorate are rubbed together chemical reaction sets in. Mercuric oxide, too, if dispensed in form of ointment containing cocaine hydrochlorate, changes so that the ointment instead of producing an anæsthetic effect upon the eyes produces an exceedingly irritating one. This is due to the formation of oxy-chloride of mercury, the quantity of which depends on the amount of cocaine used, the intimacy of its mixture with the oxide, and the age of the ointment.—*Apoth. Ztg.*

COMMENCEMENTS.

Southern Medical College—Dental Department.

The fourth annual commencement exercises of the Dental Department of the Southern Medical College were held at Concordia Hall, Atlanta, Ga., on Saturday evening, February 28, 1891.

The valedictory was delivered by W. E. Speir, D.D.S., and the annual address by Mr. Hamilton Douglas.

The number of matriculates for the session was one hundred and five.

The degree of D.D.S. was conferred on the following graduates by Dr. T. S. Powell, President of the Board of Trustees:

NAME.	RESIDENCE.	NAME.	RESIDENCE.
E. G. E. Anderson, A. B.	Tennessee	N. S. Lea	South Carolina
H. J. Arnold	Georgia	D. S. Lightcap	Alabama
F. L. Adams	Alabama	D. R. Lide	Georgia
J. K. Blasingame	Georgia	W. A. Lane	Alabama
S. J. Bivings	South Carolina	H. W. Lubben	Texas
W. O. Breedlove	Alabama	R. S. McArthur	Georgia
W. E. Beacham	Georgia	J. H. Meritt	Georgia
J. B. Bearden, M.D.	Georgia	J. B. Monerief	Georgia
E. W. Clark	Georgia	F. J. Pulford	Louisiana
G. W. Carreker	Georgia	W. R. Pearson	Georgia
J. B. Dorsett	Georgia	J. A. Reed	Georgia
B. C. Duncan	Alabama	J. H. Rush	Mississippi
E. G. Griffin	Georgia	W. E. Speir	Georgia
L. D. Gale	Georgia	C. L. Toole	Georgia
T. L. Greene	Alabama	W. J. Wade	Georgia
E. L. Hanes	Georgia	J. M. Wilkes, M.D.	Georgia
T. P. Hinman	Georgia	H. R. Williams	Georgia
D. H. Harris	Georgia	J. W. Wade	New York
I. S. Harn	Georgia	J. E. Woodward	Georgia

University of Maryland—Dental Department.

The annual commencement exercises of the Department of Dental Surgery of the University of Maryland were held at the Academy of Music, Baltimore, Md., on Wednesday, March 18, 1891.

The mandamus was read by the Dean, Ferdinand J. S. Gorgas, M.D., D.D.S.; the address to the graduates was delivered by Rev. J. J. G. Webster, D.D., and the class oration by William H. Connor, D.D.S.

The number of matriculates for the session was one hundred and sixty-three.

The degree of D.D.S. was conferred on the following graduates by the Dean, Dr. Gorgas, in the absence, from illness, of Hon. S. Teackle Wallis, L.L.D., Provost of the university :

NAME.	RESIDENCE.	NAME.	RESIDENCE.
Harry W. Allwine.....	Nebraska	John C. Loescheke.....	Germany
J. Perrin Anderson.....	South Carolina	E. A. Martin, L.D.S.	Canada
H. C. Bagby, M.D.	California	Oscar Matt.....	New York
Denison H. Baldwin	Virginia	Virgil J. McComb	Missouri
Frederick A. Barr.....	Montana	C. M. McKelvey	Pennsylvania
James G. Benjamin.....	Montana	T. Benton Moore.....	Pennsylvania
Capers W. Blalock.....	Florida	F. A. Pattinson	New York
John D. Booth.....	Canada	William B. Poist.....	District Columbia
J. W. Boozer, A.B.	South Carolina	Wm. E. Prather	North Carolina
Aubrey R. Bowles	Virginia	Bernard F. Riedel.....	Maryland
Emory M. Bowlus	Maryland	Richie W. Riley.....	South Carolina
Charles S. Boyette.....	North Carolina	Johannes Rilke.....	Germany
Elvie S. Boyle.....	Maryland	F. Robinson, L.D.S.	England
S. S. Brotherton.....	Iowa	Geo. B. Rounds	Canada
George L. Bruce	Maryland	H. Sengebusch.....	Germany
F. W. Chessrown.....	Pennsylvania	Henry D. Snow.....	Maryland
M. H. P. Clark	North Carolina	E. A. Solomons.....	South Carolina
Wm. H. Connor.....	New Jersey	Alfred E. Sparks.....	Canada
G. L. Deichmann	Maryland	A. H. Sprinkel.....	Virginia
William Earle	South Carolina	C. C. Sprinkel.....	Virginia
Will H. Ewald.....	Virginia	F. Myron St. John.....	Connecticut
Wm. M. Feild.....	Virginia	F. P. Stehley.....	West Virginia
Herbert F. Gorgas	Maryland	J. F. Stevens	Pennsylvania
J. William Grove.....	Pennsylvania	G. W. Stevenson.....	New York
W. Oakley Haines.....	Maryland	R. E. L. Taliaferro.....	Virginia
Jake V. Haller.....	Virginia	C. A. Turner.....	Canada
Henry F. Harris.....	Virginia	A. W. A. Volek.....	Germany
Marion Y. Hart.....	Virginia	Albert S. Wells.....	North Carolina
Will W. Hayes.....	Pennsylvania	George F. White.....	New York
J. Henry Hoffman.....	Maryland	R. J. Whitfield.....	Canada
Charles W. Howard.....	New Hampshire	C. E. Wingo, M.D.....	Maryland
Edward T. Jones.....	Virginia	Charles R. Wood	New Hampshire

Western Dental College of Kansas City.

The first annual commencement exercises of the Western Dental College of Kansas City were held in the Music Hall, Kansas City, Mo., on Friday, March 13, 1891.

The faculty address was delivered by Professor H. S. Lowry ; an address was delivered by Rev. S. S. Laws, and the valedictory by J. H. Cromwell, D.D.S.

The number of matriculates for the session was sixty-two.

The degree of D.D.S. was conferred on the following graduates by Professor D. J. McMillen, dean :

NAME.	RESIDENCE.	NAME.	RESIDENCE.
S. S. Brown	Missouri	H. B. Lowry.....	Ohio
J. H. Comwell.....	Missouri	Frank Nelson.....	Kansas
B. T. Edmiston.....	Arkansas	J. D. Roy.....	Missouri
H. B. Heckler.....	Ohio	C. J. Sawyer.....	Kansas
C. W. Lukens.....	Oregon		

Chicago College of Dental Surgery.

The ninth annual commencement exercises of the Chicago College of Dental Surgery (Dental Department of the Lake Forest University) were held at the Columbia Theatre, Chicago, Ill., on Tuesday, March 24, 1891, at 2:30 p.m.

The annual address was delivered by W. C. Roberts, D.D., LL.D., president of the university, and the doctorate address by Calvin S. Case, M.D., D.D.S.

The number of matriculates for the session was three hundred and twenty-three.

The degree of D.D.S. was conferred on the following graduates by Truman W. Brophy, M.D., D.D.S., president of the college:

NAME.	RESIDENCE.	NAME.	RESIDENCE.
Charles Gant Adams.....	Illinois	Fred R. McLean.....	Illinois
Frank C. Allen.....	Indiana	Hugh McNeil.....	Michigan
Evan Bailey.....	Illinois	Will F. Michaelis.....	Illinois
Claude G. Baker.....	Illinois	*Edwin D. Neff.....	Illinois
William B. Balluff.....	Illinois	Charles Odell.....	Illinois
Horace H. Ball.....	Illinois	*Frank A. Paine.....	Illinois
Charles S. Bigelow.....	Florida	Herman G. Pape.....	Iowa
*F. H. Birchmeier.....	Illinois	John I. Parker.....	Illinois
Charles H. Boughton.....	Illinois	R. McC. Pearce.....	Illinois
David A. Bowerman.....	Canada	Stephen C. Pierce.....	Wisconsin
Raymond W. Boyer.....	Michigan	Frank J. Powell.....	Wisconsin
Francis M. Bozer.....	Indiana	Ulysses G. Poyer.....	Illinois
Clare S. Bradley.....	Wisconsin	John H. Ramsey.....	Pennsylvania
Oscar F. Brightfield.....	Pennsylvania	Edd S. Reed.....	Illinois
*John B. Burns.....	Illinois	William A. Reed.....	Iowa
J. W. Cameron, M.D.....	Wisconsin	*William T. Reeves.....	Illinois
Frank Chatfee, M.D.....	Indiana	*Paul A. Riebe.....	Wisconsin
James E. Clark.....	Iowa	Mervin B. Rimes.....	Michigan
D. F. Cotterman.....	Indiana	Warren M. Ringsdorf.....	Wisconsin
George M. Crisup.....	Illinois	Cyrus H. Robinson.....	Minnesota
*Albert M. Davis.....	Michigan	Archer W. Rodman.....	Wisconsin
Henry F. Dean.....	Wisconsin	Peter H. Ruus.....	Illinois
Fred. C. Devendorf.....	Wisconsin	John M. Saucerman.....	Illinois
Wesley G. DeVore.....	Illinois	Philipp J. V. Schnell.....	Illinois
Willis H. Dwight.....	Iowa	Colfax Schuyler.....	Illinois
David H. Evey.....	Illinois	Louis A. Schultz.....	Illinois
W. H. Fancher, M.D.....	Wisconsin	William H. Simmons.....	Wisconsin
*Manfred S. Fraser.....	Colorado	Howard T. Smith.....	Illinois
Donald McK. Gallie.....	Canada	Oscar R. Smith.....	Illinois
Henry I. Gibson.....	Wisconsin	*Frederick A. Stetson.....	Illinois
Winthrop Girling.....	Illinois	William W. Strayer.....	Ohio
Walter J. Godfrey.....	Illinois	*Henry C. Strong.....	Illinois
John J. Grout.....	Iowa	Sherman T. Taylor.....	Illinois
Hans A. Guenther.....	Illinois	*Charles N. Thompson.....	Illinois
Joseph E. Hart.....	Illinois	Peter W. Thorelius.....	Illinois
A. A. H. Hamer.....	Holland	Frank S. Trickey.....	Illinois
James E. Harned.....	Illinois	Wallace E. Tucker.....	Illinois
George E. Hawkins.....	Illinois	*W. S. Van Nostrand.....	Illinois
George E. Henry.....	Illinois	Patrick H. Welch.....	Wisconsin
*Charles F. Hunt.....	Illinois	Adolph A. Wendell.....	Wisconsin
Edgar C. Kaye.....	Illinois	Raymond J. Wenker.....	Wisconsin
Edward F. Keefe.....	Illinois	Jarvis W. Wetherbee.....	Iowa
Charles G. Keehn.....	Indiana	Roy P. Wilcox.....	Illinois
S. De Bruce Knapp.....	Wisconsin	L. S. Wilson, M.D.....	Iowa
*Elmore D. Lyon.....	Illinois	Jonas T. Williams.....	Iowa
James F. Martin.....	South Dakota	Frank V. Yorker.....	Michigan
C. A. McDermand.....	Canada	Clarence W. Young.....	Michigan

*Certificate of honor for having attended a spring course of lectures.

Royal College of Dental Surgeons of Ontario.

The annual commencement exercises of the Royal College of Dental Surgeons of Ontario were held in the Normal School Hall, Toronto, on Tuesday, April 7, 1891, at 8 p.m.

The valedictory was delivered by W. Richardson, L.D.S., and the address to the graduates by J. Taft, M.D., dean of the Dental Department of the University of Michigan.

The number of matriculates for the session was sixty-eight.

The following graduates were admitted Licentiates of Dental Surgery, the certificates being presented by H. T. Wood, M.D.S. president of the board of directors:

H. D. Boyes.
Thos. Coleman.
W. F. Corbett.
O. W. Daly.
S. W. Frith.
C. D. Green.
G. H. Henderson.
J. E. Holmes.
E. R. Howes.
C. W. Lennox, D.D.S.
C. H. Lount.
O. Lillie.
Jas. Letherdale.
G. S. Martin.

A. H. Mabee.
Jas. McBride.
H. S. McLaughlin.
F. R. Porter.
W. Richardson.
J. J. Sinon.
M. J. Sisley.
H. J. Stingle.
H. R. Thornton, D.D.S.
A. T. Watson, D.D.S.
J. E. Wilkinson.
W. R. Winters.
G. F. Wright.

All of the Province of Ontario.

President Wood also conferred the degree of Master of Dental Surgery (M.D.S.) upon--

Thomas Henderson, L.D.S., D.D.S., Toronto.
Orlando H. Ziegler, L.D.S., London.
W. A. Leggo, L.D.S., D.D.S., Ottawa.

Meharry Dental Department—Central Tennessee College.

The fifth annual commencement exercises of the Meharry Dental Department of Central Tennessee College were held, in connection with those of the medical and pharmaceutical departments, at Masonic Theatre, Nashville, Tenn., on Thursday, February 19, 1891.

The salutatory address was made by A. O. Lockhart, and addresses were also delivered by Dr. N. G. Tucker, Senator Early and others.

The number of matriculates for the session in the dental class was five.

The degree of D.D.S. was conferred by Dr. J. Braden, President of the Faculty, on G. W. Bunn, of Arkansas.

University of Pennsylvania—Department of Dentistry.

The twelfth annual commencement of the Department of Dentistry of the University of Pennsylvania was held, in connection with that of the medical department, at the American Academy of Music, Philadelphia, Pa., on Friday, May 1, 1891, at 12 o'clock m.

The valedictory address was delivered by James Tyson, M.D., Professor of Clinical Medicine.

The number of matriculates for the session was two hundred and six.

The degree of D.D.S. was conferred on the following graduates by William Pepper, M.D., LL.D., provost of the university:

NAME.	RESIDENCE.
W. Lynn Adamy.....	New York
R. Antoine, M.D.....	Austria
W. T. Arrington, Jr....	Tennessee
Myron Barlow.....	Massachusetts
Geo. M. C. Barnard.....	Massachusetts
Charles H. Barnes.....	Pennsylvania
A. H. Beers, M.D.....	Canada
H. Boennecken, M.D.....	Germany
Warren E. Booker.....	Massachusetts
Arturo Borja.....	Mexico
Wm. I. Brenizer.....	Ohio
Oswald M. Brown.....	Illinois
James R. Burnett.....	Illinois
Frank L. Caldwell.....	New York
Obe B. Caldwell.....	Kentucky
Elliott R. Carpenter....	Michigan
H. E. Chesebrough.....	New York
Charles P. Chupein.....	Pennsylvania
H. B. Clearwater.....	Pennsylvania
Arthur Brooks Cox.....	Australia
William H. Cregan.....	Massachusetts
James S. Darragh.....	Pennsylvania
Charles H. Davis.....	Pennsylvania
Charles H. Dilts.....	New Jersey
Aug. H. Dreher.....	North Carolina
Theodore S. Fay.....	Germany
Edward Fetscherin.....	Switzerland
J. Milton Fogg.....	Pennsylvania
George J. Frey.....	New York
C. Franklin Gibbs.....	Connecticut
William J. Giles.....	Canada
Edson M. Green.....	Pennsylvania
Samuel S. Haines.....	New Jersey
William H. Haines.....	Ohio
Karl Hampe.....	Germany
Thomas Holder.....	New Hampshire
Fred. B. Howe.....	New York
Sidney F. Jacobi.....	Indiana
Edward V. Larkin.....	Pennsylvania
Henry M. Laros.....	Pennsylvania

NAME.	RESIDENCE.
M. W. Levkowitz.....	Costa Rica
Frederic W. McCall.....	New York
J. Atkinson McKee.....	Pennsylvania
Michael Maguire.....	Pennsylvania
J. F. Mayer.....	Pennsylvania
Archibald Miller.....	Pennsylvania
John Henry Muller.....	Switzerland
Frank L. Naramore.....	South Carolina
Patrick J. O'Connor.....	Pennsylvania
Louis E. de la Ossa.....	U. S. of Col.
Richard B. O'Sullivan.....	Canada
Geo. Janvier Paynter.....	Pennsylvania
Alfred H. Porter.....	Australia
Frank C. Porter.....	England
Leon E. Putnam.....	Pennsylvania
Louis E. Rauch.....	Pennsylvania
Charles A. Rice.....	New Jersey
Louie J. Rounds.....	New York
Jacques Russli.....	Switzerland
Earle J. Sallada.....	Pennsylvania
B. F. Sayres.....	Pennsylvania
Ernst Schiffmann.....	Switzerland
Joseph W. Schwacke.....	South Carolina
William A. Siddall.....	Ohio
Fred. A. Smith.....	New York
Julian Smith.....	New York
Wm. C. Speakman.....	Delaware
Louis J. Stephan.....	Wisconsin
Giovanni A. Stoppani.....	Switzerland
Charles H. Tillotson.....	Illinois
Chas. J. Tinkham, Jr....	Illinois
Wm. B. Townsend.....	Pennsylvania
Robert W. Volk.....	Massachusetts
Clarence V. Watts.....	Iowa
Wm. H. Waugaman.....	Pennsylvania
Theo. H. Whitbeck.....	New York
Elmer B. White.....	New York
C. H. Wilson.....	Pennsylvania
John C. Wiltbank.....	Delaware
Geo. F. Woodbury.....	Pennsylvania

DEGREE CONFERRED JUNE 5, 1890.

Milton H. Evans.....	Pennsylvania	Edward E. Rossbach.....	Germany
Clarence M. Root.....	New York		

Northwestern College of Dental Surgery.

The eighth annual commencement exercises of the Northwestern College of Dental Surgery were held at the college building, 1203 Wabash avenue, Chicago, Ill., on Tuesday evening, March 31, 1891.

The doctorate address was delivered by Professor C. G. B. Klophele, M.D.; the valedictory address by William S. Milligan, D.D.S.

The degree of D.D.S. was conferred on the following graduates by Professor R. W. Clarkson, dean of the college:

Jas. Sampson Goodridge.....	England.
George Michael Honlihan.....	Wisconsin.
Wm. Savage Milligan.....	Pennsylvania.

The honorary degree of D.D.S. was conferred on Richie DeLan, of Massachusetts.

United States Dental College.

The first annual commencement exercises of the United States Dental College were held at the Auditorium, Chicago, Ill., Thursday, March 26, 1891.

The opening address was made by Dr. J. J. M. Angear; the valedictory was delivered by H. Barry Millican, D.D.S., and an address was also delivered by Dr. G. Frank Lydston.

The degree of D.D.S. was conferred on the following graduates:

Edwin Burke.	John C. Prill.
William M. Evans.	F. F. Scherman.
Park B. Leason.	Emil Seghers.
H. Barry Millican.	William H. G. White.
Paul A. Piehl.	F. J. Warrenfells.
Gideon A. Price.	

College of Dentistry of the University of Denver.

The third annual commencement exercises of the College of Dentistry of the University of Denver were held, in connection with those of the medical and pharmaceutical departments, at the Trinity M. E. Church, Denver, Col., on Tuesday evening, April 14, 1891.

The annual address was delivered by J. C. Davis, M.D. The charge to the graduating class was given by P. T. Smith, D.D.S., dean.

The number of matriculates for the session was thirteen.

The degree of D.D.S. was conferred on the following graduates by Chancellor McDowell, of the University of Denver :

William A. Armstrong.....	New York	John S. Donaldson.....	Colorado
Robert S. Clarke.....	Illinois	Edwin C. Hember.....	England
James R. Donaldson.....	Colorado		

Baltimore College of Dental Surgery.

The fifty-first annual commencement exercises of the Baltimore College of Dental Surgery were held at Harris' Academy of Music, Baltimore, Md., on Monday evening, March 23, 1891.

The annual oration was delivered by Dr. Wayland Ball, and the valedictory address by Edward Hamm, D.D.S., of the graduating class.

The number of matriculates for the session was two hundred and twenty-four.

The degree of D.D.S. was conferred on the following graduates by Professor M. W. Foster :

NAME.	RESIDENCE.	NAME.	RESIDENCE.
David L. Aber.....	Pennsylvania	Robert S. Henry.....	Maryland
Charles E. Altemus.....	Pennsylvania	Frank W. Hill.....	Iowa
Louis D. Archinard.....	Louisiana	George H. Jackson....	Pennsylvania
Walter V. Austin.....	Minnesota	Walter L. Jones.....	Mississippi
Theodore A. Bailey.....	Georgia	George Kress.....	Ohio
Calvin D. Brown.....	California	T. B. Leatherbury.....	Virginia
John H. Bulett.....	Pennsylvania	Harold S. Lockwood.....	New York
James K. Burgess.....	Virginia	John C. Maloney.....	Virginia
James F. Butts.....	West Virginia	E. B. Marshall, Jr.....	Georgia
Joseph J. Battle.....	North Carolina	G. V. Milholland.....	Maryland
Samuel E. B echer.....	Pennsylvania	Frank S. Morton.....	Nova Scotia
Horace I. Beemer.....	New Jersey	James S. McDonald.....	Pennsylvania
Ernest Bent.....	Massachusetts	William E. Nye.....	California
Robert C. Bradshaw.....	Maryland	Cameron E. Orndorf...	Pennsylvania
John J. Carroll.....	West Virginia	Edward B. Parker.....	Virginia
Frank M. Conkey.....	Illinois	Oswald A. Parker.....	Nova Scotia
Willard L. Chapin.....	Pennsylvania	John C. Pfeiffer.....	Maryland
Calvin O. Chunn.....	Florida	Mozart W. Rainold.....	Louisiana
L. M. Cleckley.....	Georgia	Herman Reichhelm.....	Germany
Charles G. Colby.....	Connecticut	Charles P. Rice.....	Pennsylvania
Thomas A. Cronin.....	Maryland	George O. Roberts.....	Germany
Ulysses A. Dalton.....	New York	Fred. C. Royce.....	New York
John W. David.....	Texas	G. P. Schumacker.....	Massachusetts
Ernest C. Deuel.....	California	Thomas W. Sharpe...	Pennsylvania
James F. Downs.....	Maryland	Warren M. Sharp.....	New Brunswick
William Dick.....	California	Otis F. Sims.....	Florida
Edward Eggleston.....	Virginia	W. M. Steinmeyer.....	South Carolina
Josiah G. Fife.....	Texas	Wm. M. Stewart.....	New York
James G. Findlay.....	Ontario	George E. Stoddard.....	Vermont
Branch Garner.....	Louisiana	Charles B. Tarr.....	Maine
James B. Gould.....	Virginia	W. E. Teaseley.....	Virginia
William F. Graham.....	South Carolina	Thomas K. Tharp.....	Georgia
Harvey T. Greenlaw.....	New Brunswick	Rowland H. Walker.....	Virginia
Guy Gress.....	Pennsylvania	Frederick R. Wilder.....	Vermont
Edward Hamm.....	Massachusetts	Frank C. Wilson.....	Georgia
Lewis A. Hauser.....	North Carolina	Herrmann Wurzel.....	Germany
Samuel J. Heindel.....	Pennsylvania	W. E. Wolfrum.....	Wisconsin
Elmer E. Henry.....	Pennsylvania	Andrew Youngs.....	New York

Missouri Dental College.

The twenty-fifth annual commencement exercises of the Missouri Dental College were held, in connection with those of the St. Louis Medical College, at Memorial Hall, St. Louis, Mo., on Thursday, March 12, 1891.

The address to the class was delivered by Professor George Homan and the prizes presented by Dr. Wm. N. Morrison.

The number of matriculates for the session was ninety.

The degree of D.D.S. was conferred on the following graduates by Dr. H. H. Mudd, Dean of the Faculty :

NAME.	RESIDENCE.	NAME.	RESIDENCE.
Edward L. Beatie.....	Missouri	Reuben G. Porter.....	Michigan
Arthur C. Bedford.....	Missouri	Arthur G. Purdy.....	Illinois
Moses C. Boswell.....	Missouri	Wm. T. Rutledge.....	Missouri
C. L. Brudewold, M.D....	Pennsylvania	Herman Saxenmeyer ..	Illinois
James S. Coyle.....		Herman O. Settelson.....	Switzerland
Marvin L. Cumming.....	Illinois	Samuel Schrantz.....	Missouri
Charles E. Dungan....	Illinois	Carl E. Schumacher.....	Westphalia
Walter R. Eckle	Missouri	George C. Schwarz.....	Illinois
James B. Harrison	Indiana	John O. H. Thiele.....	Germany
George D. Kennedy.....	Colorado	Hugh G. Voorhies.....	Illinois
John W. Markwell.....	Indiana	James F. Wallace.....	Missouri
John E. Masterson.....	Texas	Matthew D. Wilson.....	Missouri
Joseph De G. Peck.....	Kansas	Park H. Winans.....	Illinois

Tennessee Medical College—Dental Department.

The second annual commencement exercises of the Department of Dentistry of the Tennessee Medical College were held at Staub's Theatre, Knoxville, Tenn., on the evening of March 19, 1891.

An address was delivered by Rev. R. R. Sutherland, D.D., and the charge to the graduating class was given by Professor Charles M. Drake.

The number of matriculates for the session was eighteen.

The degree of D.D.S. was conferred on the following graduates by Colonel E. J. Sanford, President of the Board of Trustees :

NAME.	RESIDENCE.	NAME.	RESIDENCE.
R. S. Booth.....	North Carolina	J. K. Moose	North Carolina
D. D. Foley.....	Kentucky	T. B. McBride.....	Pennsylvania
H. F. Henderson	Virginia	Wexler Smathers.....	North Carolina
J. A. Keener.....	Tennessee		

College of Dental Surgery of the University of Michigan.

The sixteenth annual commencement of this department was held in University Hall, Ann Arbor, Thursday, June 25th, 1891. The number of matriculates was one hundred and thirty-two.

The annual commencement address to the graduates of the university was delivered by the Hon. J. C. Gilman, of Johns Hopkins University, Baltimore.

The degree of Doctor of Dental Surgery was conferred on the following candidates by the president of the university, James B. Angell, L.L.D.:

Walter Horace Booth.
James Frank Cook.
Manuel Vicente del Valle.
Rokus Christian Devries.
Arthur Aaron Deyoe.
Frank Chester Dorrance.
Charles Henry Edwards.
Frederick William Fleming.
Walter Jesse Green.
Frank Snyder Henry.
William Edward Kearns.
Gordon Grant McCoy.
Austin McGuire.
Clinton Floyd Metcalf.
Arthur Werner Mueller.

Pascal Pratt Nelson.
Charles Sigfried Rudolph Osius.
Michael More Park.
Wilsie David Reed.
Clinton Robert Scott.
Alfred Louis Sickler.
Charles Perce Stone.
Jonathan Ray Taft.
Lewis Carlisle Thayer.
Victor Emanuel Tuttle.
Eldon Waterloo.
Lucy Kate Waterloo.
William Williams, M.D.
Burt G. Winans.

German-American Dental College.

The annual commencement exercises of the German-American Dental College (Deutsdh-Amerikanische Schule fur Zahnheilkunde) were held in the Grand Palace Hotel Banquet Hall, Chicago, Ill., on Wednesday, March 11, 1891, at 8 P. M.

The address for the faculty was delivered by Prof. Dr. Fritz Brunhoff, who was also the recipient of an honorary degree. The valedictory was delivered by Dr. Felix Arendt, of Russia.

The number of matriculates for the session was twenty-two.

Degrees were conferred on the following graduates by Dr. J. Bernauer, Professor of Histology and Surgery :

NAME.	RESIDENCE.	NAME.	RESIDENCE.
Felix Arendt	Russia	Eugen Mueller	Switzerland
Max Benedikt	Austria	Edwin Schenk	Germany
P. Krause	Germany	C. Schuhmann	Germany
Max Kalbe	Germany	C. Schmidt	Germany
E. Klemich	Germany	August Vogele	Germany
M. Muehlhauser	Germany		

Indiana Dental College.

The twelfth annual commencement exercises of the Indiana Dental College were held in the Propylæum Building, Indianapolis, Ind., February 27, 1891.

The annual address was delivered by Dr. M. F. Ault, of Kokomo.

The number of matriculates for the session was ninety-six.

The degree of D.D.S. was conferred on the following graduates by Seneca B. Brown, M.D., D.D.S., President of the College:

NAME.	NAME.
A. L. Austin	L. Lichtenwater
W. E. Armstrong	Miss L. B. McCollum
W. S. Beazley	A. O. McCutcheon
J. W. Brimacombe	O. F. Overstreet
M. M. Cook	O. Palmer
B. D. Curtis	B. T. Perkins
C. P. Danks	M. Raschig
C. Feigel	G. S. Rhea
E. D. Foulds	L. W. Roe
C. B. Hayford	P. A. Row
H. C. Heaton	Mrs. H. G. Scott
C. G. Hoover	E. F. Shields
J. B. Jacques	O. V. Simmerman
W. A. Johnson	F. Smith
M. W. Johnston	V. Smith
G. C. Keel	L. J. Stiver
M. J. Keightly	C. P. Tinkham
O. A. Keiser	C. E. Whitesides
R. H. Kiser	C. F. Williams
J. M. Lewis	H. M. Zehrung

The Deodorization of Iodoform by Creolin.

Dr. Ludwig Vaczi, a practitioner in Nagy-Karoly, communicates to the *Medicidisch-chirurgische Rundschau* his discovery of the power of creolin to deodorize iodoform. He had prescribed an ointment consisting of one part of creolin, two of iodoform and twenty-five parts of vaseline. On the following day he was surprised that not only was the usual color of iodoform ointment changed, but that there was no smell of iodoform and only a slight smell of creolin. He points out how important it is in many cases that the presence of iodoform should not be known by its odor, and considers creolin the very best of all deodorizing drugs for the same. It not only does not irritate, but it is also itself a good disinfectant.—*Lancet*.

Kansas City Dental College.

The ninth annual commencement exercises of the Kansas City Dental College were held in Grand Avenue M. E. Church, Kansas City, Mo., on Tuesday evening, March 10, 1891.

The faculty address was delivered by Professor W. T. Stark, and an address was also delivered by W. S. Cowherd.

The number of matriculates for the session was one hundred and seven.

The degree of D.D.S. was conferred on the following graduates by C. B. Hewitt, D.D.S., President of the Faculty:

NAME.	RESIDENCE.	NAME.	RESIDENCE.
Wallar B. Austin.....	Missouri	Frank C. Kenney.....	Missouri
William K. Aitken.....	Kansas	Samuel W. Kincaid	Kansas
Alba L. Ashby.....	Kansas	Paul J. Laws	Kansas
Henry E. Baxter.....	Kentucky	Charles B. Lyon.....	Kansas
W. C. K. Buchanan.....	Missouri	George L. Lewis.....	Kansas
William P. Baker	Kansas	Alfred H. Mann.....	Kansas
Frederic G. Corey	Kansas	William B. Myers.....	Kansas
Alonzo T. Crow.....	Kansas	James R. McLeland.....	Kansas
Frank J. Claypool.....	Kansas	Wm. H. Ockerman	Missouri
Archie M. Detrick.....	Nebraska	Simpson Ockerman.....	Iowa
Charles A. Draper.....	Missouri	Arthur D. Park.....	Missouri
Rezin T. Fowler.....	Missouri	Chester B. Reed.....	Kansas
Robert P. Greenlee.....	Missouri	Harry E. Roberts.....	Illinois
Elbert Q. Gibson.....	Missouri	Abert O. Sage.....	Kansas
James Galloway	Colorado	Matt. F. Toler.....	Kansas
Harry D. Hines	Iowa	Winslow P. Upton.....	Kansas
F. G. Hunsicker	Kansas	Henry A. Whitmer.....	Missouri
William B. Hale.....	Missouri	William N. West.....	Kansas
Aaron L. Hitchins	Kansas	George H. Woods.....	Kansas
John D. V. Kice.....	Missouri	Frank M. Wilson.....	Iowa
Augustine H. Kirby.....	Kansas	Oakley R. Wibking.....	Kansas
James T. Kenney	Missouri		

How to Wash the Face.

You all, no doubt, think you know how to wash your face, yet many persons have paid two guineas to the distinguished English physician, Sir Erasmus Wilson, for the following advice:

“Fill your basin about two-thirds full of fresh water, dip your face in the water then your hands. Soap the hands well and pass them with gentle friction over the whole face, then dip the face in the water a second time and rinse it thoroughly. A second basin ready with fresh water is a valuable addition. Rain or distilled water, owing to its purity and softness, is the best for washing the face.”

MEETINGS.

GRAND RAPIDS, June 22, 1891.

DEAR DOCTOR: The thirty-sixth annual meeting of the Michigan Dental Association, will be held at Sault Ste. Marie, August 18, 19 and 20th, 1891. Special rates by rail and boat are being arranged, and the prospects are for a very large attendance. We are desirous of preparing a full programme for the meeting, which will be mailed to the members in a few weeks, and to this end request an immediate response from all members who propose to contribute to the interest of the meeting either by a paper or a clinic.

Yours truly,

J. WARDHOUSE, Secretary.

Room 2. Widdicomb Building.

THE American Dental Society of Europe will hold its seventeenth annual meeting at Heidelberg on the Neckar, in the beautifully situated Schloss Hotel, on August third, fourth and fifth, 1891.

The officers for the year are:

President: Dr. William R. Patton, Cologne.

Vice-President: Dr. Isaac B. Davenport, Paris.

Treasurer: Dr. Charles H. Adams, Frankfort.

Secretary: Dr. Lyman C. Bryan, Basel.

EXECUTIVE COMMITTEE:

Drs. Patton, Adams and Wetzel.

MEMBERSHIP COMMITTEE:

Drs. Davenport, Jenkins and Prof. Miller.

Members of the profession are cordially invited, and are requested to notify the Secretary at an early date of their intention to attend the meeting, contribute papers or demonstrate before the Society. Programmes will be issued by June first and may be had on application. The charming site of Heidelberg will allow the Society to intersperse its three days proceedings with excursions to interesting points and visiting the University and the magnificent ruins of the castle.

Meeting of the Committees on Dental Patents.

There will be a meeting held at the Town Hall, Saratoga, Monday evening, Aug. 3d, at eight o'clock, of all the committees appointed by the different dental societies all over the United States for the purpose of organizing and taking some action toward the prevention of further issuing of patents upon operations in the mouth. It is hoped that every society will see to it that they are represented at this meeting. Remember it will be held the Monday evening preceding the meeting of the American Dental Association. S. C. G. WATKINS, Chairman for New Jersey Committee, W. L. FISH, Secretary.

EDITORIAL.

The American Dental Association.

The annual meeting of this body takes place in Saratoga, N. Y., on the first Tuesday of August, continuing four days. This society was organized over thirty years ago. It was organized by, and consisted of delegates from the various States, and local societies of the United States. It is regarded as the representative body of the profession of this country. It has accomplished great good for the profession in many ways, but especially by its efforts more pronouncedly put forth in the early years of its existence for the organization and maintenance of State and local societies. It was instrumental, in the early years of its existence, in securing the organization of a large number of dental societies, nearly all of which remain to the present time and have done good work for the profession. Within the last ten or twelve years, however, this central organization has relaxed its effort in this direction and less has been accomplished relatively during this time than before. There is, however, apparent a revival in this respect; there is in the minds of many the idea that the association should take hold of this work with increased energy. There is much that could be done by properly directed effort. There are many parts of the country

where new societies should be organized and doubtless much could be done, at least suggestively, by this body in the way of improving and expanding dental society work. So much has uniformity and routine methods of procedure been employed in dental society work that it has often become wearisome.

Would it not be well to have a committee of a proper number, and of suitable persons, whose duty it should be to take this subject into consideration with power to suggest and co-operate with local societies with a view of increasing interest, stimulating enthusiasm, devising new methods of work, and increasing the efficiency of the old.

Dental societies are the practitioners' colleges, and it is as important that they should be maintained and made most efficient as for any other arm of the professional service.

Another direction in which this body has been of great service is that of the dental education. It has had, from the beginning, its annual report upon this subject. These have usually been valuable productions giving important suggestions, and doubtless influencing the profession, and especially those engaged in educational matters in a very marked degree.

The declarations that have been made in this body in the way of papers, discussions and resolutions have always been in the direction of progress, and have in many instances exercised a decided influence for good.

The professional ethics have not been overlooked. A code of ethics of a very high order was devised and adopted by this body in its early history, and this was to be, and has been, not only for the regulation of the professional conduct of the members of this body, but for those of all societies who have membership in this organization. The influence of this code in raising and stimulating true professional character and dignity can not be estimated.

Dental legislation has also received the sanction of this body, and while perhaps it might have done more in this direction than it has, yet whenever the occasion has occurred to make a declaration, it was for the enactment and maintenance of good wholesome regulating legislation. While the things here men-

tioned have received attention the art and science of the profession have both had a large share of attention and consideration, and perhaps occasionally more relatively, than they should have received. Now should not every true professional dentist, every well wisher of his chosen calling support and co-operate with an organization seeking to accomplish the work here outlined?

Every society should have its representatives in this body and have a part in the great work it is seeking to accomplish. This would be a stimulus to all societies to seek the elevation of the profession within the sphere of their influence.

Cleveland, (O.) Dental Society.

For a purely democratic and unselfish dental society, go to Cleveland, Ohio. It was our pleasure to attend their meeting June 18th, of course they have a president, secretary and treasurer, but these offices are not the goal of every member. Cleveland dentists are noted for their practical applications in dentistry, and hence all items of interest that were introduced were practical in their nature.

The society meets at 5:30 P. M. and all business is transacted, and the essayist of the evening then reads his paper and discussion follows until dinner is announced by the courteous waiter. It should have been mentioned that the meetings are held at the Hollenden Hotel in private parlors.

As the various courses are served, discussion of the paper and other topics that are selected by questions, continues till the conclusion of the dinner which lasts— well, until the subject for discussion is well ventilated and the food-stuffs seem a burden to carry. The hospitality with which this society treat their guests is extravagant, but they know how to do it.

The essay of the evening was read by Dr. D. R. Jennings, and the readers of the REGISTER are to be congratulated that his paper, which is to be one of a series, has been obtained for publication. Dr. Jennings is one of those who rarely can be induced to write, and the younger men lose often, the many golden grains

such men possess until they do write. Dr. Jennings' paper appears in the present number of the REGISTER. The meeting usually adjourns at the close of the dinner.

Would that there were many more such societies in existence.
W.

Obituary.

Died, at his home in Springfield, Ohio, June 4th, Dr. Frank C. Runyan after a long and painful illness. He has been in feeble health for over a year. The immediate cause of his death was the amputation of his leg; the shock being too great for his enfeebled condition. There has been, for months, necrosis of the bone of the limb.

Dr. Runyan has been a leading member of the dental profession in Central Ohio for many years. He was a man of definite and pronounced views and opinions, and always prompt to advocate and maintain what he thought to be right. He has been for many years an active member of the Ohio State Dental Society; he always took an interest in all that pertained to its welfare and prosperity. He was a graduate of the Ohio College of Dental Surgery, taking his degree from this institution in 1872, since which time he has been engaged in the practice of his profession in the city of his home. He was one of the men whom the profession can ill afford to spare. He leaves a wife, Mrs. Georgie D. Runyan, a literary writer of marked merit. The family will have the warm sympathy of all who knew Dr. Runyan.

In Memorium.

The following resolution by Dr. Allport in regard to the death of Dr. White, was passed at a meeting of the Chicago Dental Society held Tuesday evening, June 2d, 1891.

Whereas: It hath pleased the Creator and final disposer of all things to remove from this world Dr. James W. White, of Philadelphia, and

Whereas: It is fitting that this society should make some

record of its appreciation of his virtues and of his useful life, therefore,

Resolved: That in the death of Dr. White, dental journalism has lost its ablest editor, the business world a member of sterling integrity, the unfortunate and needy a practical philanthropist and the church an exemplar of the nobility of a liberal christian religion.

Resolved: That in their affliction we extend to his bereaved family our sincere sympathy, and with reverent humility we commend them to Him who has promised to be "the friend of the widow and the fatherless" and "a real present help in the time of trouble."

Resolved: That a copy of these resolutions be transmitted to the family of the deceased and sent to the *Dental Cosmos*, *The Dental Review* and other dental journals for publication.

THE annual meeting of the Post-Graduate Dental Association of the United States was held at the Leland Hotel, Chicago, June 24, Dr. Cushing, President, in the chair.

The order of the day was reports of officers, transaction of routine business, election of officers and interesting discussions in regard to the future work of the society.

Officers elected for the ensuing year are: President, Dr. R. B. Tuller, Chicago; Vice-Presidents, Dr. Levi S. Keagle, Vinton, Ia., Dr. A. P. Nicholson, Edgerton, Wis., and Dr. M. R. Julian, Lafayette, Ind; Secretary and treasurer, Dr. L. S. Tenney, Chicago.

This organization has just completed the second year of its existence and seems to have struck a popular chord in the profession as its rapidly increasing membership would indicate.

As is generally well known the object of the society is mainly to establish a systematic course of home study and measures are now on foot to begin this work during the year.

Those desiring further information should address the Secretary, Dr. L. S. Tenney, 96 State street, Chicago, Ill.

THE DENTAL REGISTER.

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[No. 8.

TRANSLATION.

The Oldest Dental Book.

Treatises upon the teeth and their diseases have been embodied in medical works of the most remote period; for ever since teeth were placed in the jaws of man they have been a source of pain and disease, the relief of which demanded the consideration of all who pretended to be curers of afflictions that make men sufferers.

So far as is known the first to consider the teeth of sufficient importance as to prepare a separate work upon them, was Peter Jordan, of Mayence, Germany, in the year 1532. The owner of the only copy of this little work, known to exist is Dr. H. J. McKellops, of St. Louis, whose extensive library contains many rare and choice works.

The following translation of this book, while it may not be adopted as a guide for modern practice, will prove interesting in showing the methods of our dental brethren of the sixteenth century. The title page is as follows : W. T.

DENTISTRY.

A treatise upon all kinds of infirmities and diseases of the teeth with, Many *wholesome* and *approved* medicines, taken from the books of Galen, Avicenne, Mesne, Cornelius Celsus and Pliny, with brief and useful *instructions* how to *preserve* them in good health and to *extract* the bad ones or their roots, *easily*, *safely* and without *pain*. The contents of this *Record* will furnish a remedy for every defect. Printed at Mayence, by Peter Jordan, in August, 1532.

CONTENTS OF THIS LITTLE BOOK.

- First Chapter : When and how many Teeth Grow in Man.
Second Chapter : By what Causes the Teeth Are Ruined.
Third Chapter : How To Assist Children to Easy Teething.
Fourth Chapter : Of Sore Teeth.
Fifth Chapter : Of Hollow and Perforated Teeth.
Sixth Chapter ; Of Corrosion of Teeth.
Seventh Chapter : Of Yellow and Black Teeth.
Eighth Chapter : Of Depressed Teeth.
Ninth Chapter : Of Wavering Teeth.
Tenth Chapter : Of Worms in the Teeth.
Eleventh Chapter : Of Ulcers and Stinking from Ulcerated gums.
Twelfth Chapter : Of Breaking out of the Bad Teeth.
Last Chapter : Of Preserving Good Teeth.

PREFACE.

The Lord Almighty, who is cognizant of every thing from its very beginning, in his inexpressible wisdom, has not vainly ordained that the teeth in brutes, as well as in mankind, should be the first preparers of food so that nature might be assisted in the preservation of the race. For if the stomach, from which the other parts of the body are nourished, become sick or weak, also the remainder of its members become so, even those parts which prepare our food, as a cook. Therefore it becomes us to take care of them and see that they do not suffer injury and thereby cause great impairment of the body. But the teeth are not only preparers of food, but are also given to man for speech, and so for government, especially the anterior ones, which at once in lovely sound, receive and echo the impulse of the tongue, and as Pliny says, "Create order and sweet civility." [Plinius libe 7. Cap. 16]. In falling out or being otherwise hurt and lost, they entirely prevent the pronounciation of some letters and words, to prevent which I have lately gathered the advice of old and experienced physicians in order that I might inform and advise our youth. I beg of my readers to accept the following lines good humoredly.

THE FIRST CHAPTER.

WHEN AND HOW MANY TEETH GROW IN MAN?

In the first place it should be remarked that nature in producing teeth is quite erratic. Some (astonishing as it may seem) are born with teeth, as for instance, Marcus Curius, a renowned Roman, who was on this account called "Dentatus," which means a man with teeth. Also Cenus Pahirius, and some others. Some, instead of teeth have a full bone from which the teeth begin to sprout in the seventh month after birth, and from this on continue to grow until the age of thirty-two years. But in some they come with greater ease and at an earlier time than others. [Plinius lib. 11, Cap. 37].

Some teeth first appear in the twentieth year of age, with many, as Pliny says, (Plinius lib. 11, Cap. 37) "in the eighth-tieth." They also fall out in old age, and with some regrow, as for instance, it is related of a Samothratian citizen in whose jaws teeth were growing again after having arrived at the age of one hundred and four years; as in the case of Timarchus Nikokleson, who had two well-developed jaws with teeth in them which never dropped out, but were completely worn away by use; this was also the case with his brother. There are also men who have teeth in their larynx, but this forms an exception and is to be counted among the marvels of nature.

THE SECOND CHAPTER.

THE CAUSES BY WHICH TEETH ARE RUINED.

Now, as the teeth are given to man for the purpose of chewing his food, as well as an instrument of speech, it becomes necessary for us to keep them, as far as possible, in good order and avoid all conditions that might invade and do them damage, and if any accident befall them (which often occurs) it becomes us to take care and apply a remedy before it gains too much headway, for if taken in the beginning its correction is easily accomplished, and medicines ought not to be applied too slowly. As a precaution every body, therefore, should after every meal have a care that the teeth be cleansed of adhering remnants of food, and the mouth be rinsed and purified with fine, pure water.

With all diligence foulness of the victuals taken in must be avoided, for it causes bad mist to arise from the stomach and seriously injures the teeth.

Also great care should be taken to prevent frequent vomitings which is followed with great damage to the teeth, for they may become broken, or ulcerous and unfit to even bite a straw. But where involuntary vomiting is the result (to assist nature and relieve the stomach) the mouth ought to be refreshed as soon as possible with rose-water or vinegar or some other purifying matter (*rup. coloris dentium*) repeatedly. (Mœsne, Summa, Cap. 8, on the corruption of the teeth and color).

Eatables averse and injurious to the teeth are to be avoided, as for instance dry figs, boiled honey, sweet garlic, (*Avicenna ut Supra*) (same advice as above) fat meat being tough, sour apples, vinegar from wood pears, milk and radish, all of which cause the teeth to become ulcerous.

One must also be careful not to bite on any hard stuff, such as hard nuts and the like, or any thing that in breaking injures the teeth.

All slimy, sticky and fat eatables are to be renounced, for they remain upon the teeth and not without damage. Also hot food is to be abstained from, for they do burn the teeth and can never be taken without doing damage to them.

Also very cold eatables and drinks must not be used for they cause very much pain, and besides it is admitted that they produce teeth caries as well as that of bone.

Moreover avoid taking quick-silver, or salves mixed therewith, and quite especially if putting them on a coal fire be careful not to inhale the fumes thereof so that they reach the teeth, and never take quick-silver as recommended by frauds, rubbing therewith red mint, and then placing the fingers in the mouth.

Also one ought not to go to sleep after loading the stomach, for this can only be done to the detriment of the teeth.

THE THIRD CHAPTER.

HOW TO ASSIST CHILDREN IN AN EASY GROWTH OF TEETH.

It has just been said that with human beings, as a rule, the

teeth begin to crop out in the seventh month of their age and in the general course of nature they usually appear in connection with some accidental diseases accompanied with great pains, for which one may employ the following named useful means :

In the first place children whose teeth are often affected by soreness ought to be repeatedly bathed, and their gums after such bathing, should be gently rubbed with one finger anointed with warm chicken or goose grease. When the teeth are supposed to come out (shed) in order that they may not hurt too much (Avicenne, tert, fen, pri. lib. doct. 1 Cap. 2. Mesne proprie de gnatione dentium) take a hare's or rabbit's brain stuff, mixed with said fat and apply it outwardly. (Avicenne, lib. 2 de simpli capit 397).

Then take poplars, clover and camomiles boiled in water and while warm wash the head, neck and cheeks, (Mesne prima patri, Sectionis prima summa, 8 Capit. de gnatione dentin, Avicenne ut supra. (Mesne 1st Part, 1st Section 8th Chap. on ignition of teeth, Avicenne ut supra).

But after the teeth begin to make their appearance and come to sight, take fine suitable sheep's wool, from the lower part of the neck, and oil of camomile nicely warmed up, in which the wool is to be steeped ; when so prepared apply it to the neck and jaw bones ; this is very efficacious for children, making the growth of the teeth very easy. (Mesne ut supra).

It often comes to happen that with children above seven years of age when their teeth begin to fall out others crop out near them, wherefore the old one destined to be lost, and next to which the new one is sprouting, ought to be well cleansed and frequently shaken till it can be extracted. Then press the new one every day to the place where its predecessor has been standing and direct it until it comes to the exact place to the one extracted and in an equal line with the others. Then, if properly taken care of, it will remain in that position, otherwise the first tooth will turn back and the young one will be prevented from taking a straight position, nor can it by any means be brought back to its proper place.

THE FOURTH CHAPTER.

ON THE TEETH'S SORE DAYS.

What the sore days or pains of the teeth are nobody knows so well as he who has experienced them, and I hold that no greater pains than these can be found. They, once in a while, result from a bad condition and derangement of the veins entering into the teeth. Some are of the opinion that toothache is one of the hereditary diseases, innate to one by one's father or mother, which is probably not far from the truth, because now-a-days we see everywhere children mostly subject thereto, who have had parents both of whom have been suffering from it.

But relief from this pain, as told us by Johannes De Figo, is principally accomplished in three ways.

In the first place by well-governed eating and drinking by the one thereby affected. He must avoid every thing mouldering, foul and stinking, viz.: old dough, milk, cheese, fish roughly salted, dry or smoked meat and the like eatables as afore referred to.

Moreover, by removing the matter from which pain arises, and here the first change is to be affected by bleeding or cupping as Mesne directed, by cupping the artery or veins in the lips, doubly beneath the tongue, the liver vein, on the shoulders, below the neck, on the chin, nicely closing the gums with a fine pair of scissors letting the remaining blood ooze out; also the matter ought to be purged with the roseate electuary of Mesne or rhubarb pills, but if the pains are caused by cold, then by pills de fumio ferre, (*Sine quibus effenolo*) all to be found in a drug store, and which ought to be taken in accordance with the advice of an experienced body physician, as occasion and time may require.

Thirdly, pain may be removed by a manifold application of medicines and such as benumb and relieve it, which may be accomplished by applying either a simple remedy or one composed of several stuffs. The latter ones are again of two kinds, some which allay pain originating from heat, and some that arises from cold matter. These should be observed by every one.

If the pain should have its origin from cold take into the mouth according as may be agreeable, one, two or three doses of the following :

Take Bertram root, boil it in wine and keep it warm in the mouth, or take Bertram ginger and boil it in vinegar and use it in the same manner ; or take some pepper and euforbium, crush them with honey and put them on the teeth : or take a part of the kernel of a peach, half a part of pepper, mix it up and apply to the teeth ; or take Bertram ginger, pepper, louse root, or wolf weed, in equal portions, pound them together and rub the gums with it ; or take seeds of onions, barley and the like, all in equal parts, compound them, making in cakes half as large as hazel nuts, then put one of them on a coal fire and cover it so that the smoke is bound to come up to the teeth which are causing pain ; or take the seeds of mushrooms with a little Swiss ginger, Sandara, or Bertram, and pound well, with a little bag of a finger's length filled with it, apply to the sore tooth which will remove the pain ; or take Bertram steeped for half a day in vinegar and apply to the sore tooth this will remove the pain.

On the other hand, if the pain is caused by heat use the following, viz.: Take the root of the European sunflower with its white blossoms, a handful of roses, barley, sumach, in equal parts, tormentile and some other seeds, two quents (half ounces) and let them be stamped together, two handfuls of lettuce, one handful of lotus and boil together in two measures of rain water and one third part of vinegar, allow it to simmer down to one half and drain through a piece of cloth, and apply to the mouth on the side where the teeth are aching.

Avicenna says (Avicenna, lib. de simplicibus capit 66) " If you take serpent's skin and saturate with vinegar and place it to the mouth it will be good." Some add to the vinegar wine of pomegranates.

Or mushroom seed roots with oil of roses chewed with vinegar, also retained in the mouth, is good.

There may also be applied to the sick tooth metridatum nicolai, or take iron weed with its root, boil in wine to one-half its quantity and take it whilst warm into the mouth. But when

the pains are heavy, and the teeth too much protrude take pepper, myrrh, burned beans, crush them to a powder, mix with it the white of an egg, make into a plaster by spreading upon a piece of cloth, place it upon the thin part of the cheek at the side where the pain exists. Mesne says, "Some medicines should be externally applied to the cheek where the pain is greatest, such as poplar, camomile flowers, clover, Grecian hay, linseed, seeds of parsnips, or lily roots and the like." These must be nicely crushed and prepared into a plaster, or they may be partly boiled in vinegar or wine and applied to the cheek. Outwardly oil of camomile may be used for rubbing in as well as several other oils.

Or take the seeds of mushrooms and of alum, four half-ounces, vertrum, three half-ounces, crush them to the utmost firm small cakes with vinegar the size of beans, and when suffering from toothache take one and rub it on the tooth and gums at the seat of pain, or put one in a little wine or vinegar, rubbing it in till dissolved and put it on the cheek and into the mouth where the suffering exists.

Or take pinks, calmus, cinnamon bark in equal parts, powder them as minutely as possible, add some brandy and let the mixture settle, then with it moisten a small piece of cloth and apply to the teeth.

Or oppoponacum dissolved in vinegar and boiled and held in the mouth is good for pains and cavities in the teeth.

Or take asafoetida, storacis mint, round hole-wort, opium, pepper, mushroom seed, ginger, in equal parts, crush them minutely together and mix with honey, and in case of need apply to the teeth which are aching.

Or hysop boiled together with honey and vinegar and inserted into the mouth relieves the pain.

Or frogs boiled in water and vinegar and holding the broth in one's mouth effects much. (Avicenna, lib. 2 de Simplicibus Cap. 596).

But if the cheeks begin to swell, this is an indication of vanishing pain, for the pain's basis then is retreating from the veins emptying into the teeth and the membrane or skin issuing from

the brains and surrounding the teeth retires to the uppermost fleshy part, the cheeks and contiguous parts and inflates them by swellings for which the following is very good : Take half a handful of violet leaves, add to them dried grape berries and twenty gooseberries, a handful of barley a little crushed, moreover, an herb called oxen-tongue and liquorice, one ounce of each. Boil the whole together in rain water until it becomes reduced to half its original quantity. Then press and drain through a piece of cloth, then add two ounces of violet syrup (*syrupi violarum*). Repeatedly bathe the mouth with this and it will probably be an advantage.

Or rubbed and pounded parsley fastened to the hand relieves pain in the teeth, according to Mesne (*ubi supra*). Or parsley boiled in wine and a quarter of an ounce of olibano, and one third of an ounce of myrrh boiled to the density of honey, quickly relieves pain when applied to the suffering tooth.

Or corn-flowers boiled in vinegar and taken into the mouth assuage the pain as also does the root of mushroom seed ; or the root of small thistles cooked in wine and kept in the mouth relieves the pain in the teeth.

Or frogs boiled in water or vinegar the broth to be taken into the mouth. (*Avicenna, 2 lib. on simplicibus, Cap. 596*).

Also garlic is very wholesome for ailing teeth especially if mixed with butter and externally applied.

Or rhubarb or worm-wood boiled in vinegar, wine or beer kept in the mouth relieves the pain, also the root of the large camomile, mustard, mulberry tree, as well as the bark of the maple, five-finger-weed, leaves of sunflowers, and the like, serve the purpose very well if taken singly, or two or three combined ; or oil dregs also remove the pain.

THE FIFTH CHAPTER.

ABOUT PERFORATED OR HOLLOW TEETH.

Erosion is a disease gnawing the teeth whereby they become perforated or hollow, which most frequently attacks the buccals, especially if they are not well cleansed of adherent remnants of food, for if these are allowed to remain they become putrid, tak-

ing on a bad acid humidity which infects and corrodes the teeth which gradually increases until it entirely destroys them. They become rotten and painful and drop out one piece after another.

This suffering, as Mesne says, may be cured principally in three different ways (as Mesne says in the preceding chapter). First, by purging as referred to above; second, by neutralizing the matter which corrodes and hollows them out. This may be done by boiling flowers growing amongst wheat or rye in vinegar and taking them in the mouth; also ginger boiled in vinegar.

Thirdly, by removing the cavity, which may be done in two ways. Firstly, by removing the whole corrosion with a sharp chisel or knife or other fit instrument; scrape and clean and besides fill the small hole in the tooth with small lamellas of gold in order to preserve the adjoining one. Furthermore, apply proper medicine, such as gall-apples and wild-weed with which the tooth, after having been cleansed, may be filled.

Or take mushroom seed mixed with gummi storacis which must be ignited and inhaled through a funnel into the hollow tooth.

Or galbanum put in the perforated tooth alleviates the pain.

Or if the hollow tooth is filled with opoponnaco the pain will be removed.

Or put pounded torellas in the hollow teeth whereupon they shall drop out.

Some say that the teeth will never become hollow if one before breakfast every morning puts salt beneath his tongue until it melts away by itself.

For hollowness and pain of the teeth take pepper, bertram, galbanum and storacis in equal parts, pound together and apply to the teeth.

If hollow and corroded teeth are aching take the heart of a gall-apple and put it in the hole and it will relieve the pain.

For corrosion of teeth and their achings take pepper, bertram, nux vomica, especially the latter's milk (in Latin lacti-timalli) galbanum and storax, mix them together and therewith rub the teeth.

THE SIXTH CHAPTER.

There does also attach to the teeth an ailment called congelation; properly meaning in Latin, "And it befalls the teeth." (As Johannes de Figo says). Sometimes from outward causes, sometimes from inward ones. From outward, when something sharp or sour is taken into the mouth, as for instance, sour-cROUT, sour wood apples, pears and other sour fruit. Inwardly, when bitter and sour humidities arise in the stomach and their eructations rise up into the mouth or gums, in such cases it is good to eat walnuts, hazel-nuts, or almonds, or mix together and pound them and rub the teeth with them, or you may take only one of the ingredients.

Or take, what in Latin is called, portulacca seeds and chew them in your mouth.

Or take some warm bread, roasted cheese, the yolk of an egg, which must be warm, add a little salt, mix together, and while warm, put it on the teeth.

Some under such circumstances used to eat laurels, which is not bad either.

THE SEVENTH CHAPTER.

FOR BLACK AND YELLOW TEETH.

Limosity is where white, yellowish or blackish slime (deposit) settles at the lower part of the teeth, by some called "tartar of cream."

Black and yellow teeth are caused by eating and consuming honey and other sweet matters, and he who wishes to retain white teeth should abstain from such things, and above all from sponges, mushrooms and all vegetables of that kind, or from wheat or other fruit.

The regular and natural shape of the teeth is preserved and the diseased ones restored by medicine which is drying and purifying, and possesses the power to rub off impurities and cleanse, as for instance, spumaris, salgemure, etc.

Ex. A powder to whiten teeth. Take the root of the wild gallow-weed close to the root where it is white, pound it, mix it into pellets with honey and dry in a stove which is not too hot.

Then take these pellets about half an ounce, rhubarb and cresses an eighth of an ounce, of each of carmeite and ligni-aloes a half ounce; prepare it into a powder and have the teeth rubbed therewith.

Or oil burnt with salt rubbed on the teeth will relieve and free them from their impurities.

Black teeth ought often to be scraped, smeared over and rubbed over with the following medicine: Take roses and one fourth part of as many gall-apples, or some other bitter herb, pound and compound, and rub the teeth with the mass.

Or take good burnt sulphur and brimstone two ounces of each, pound together and rub the teeth.

Or take raw dismembrated egg-shells and an equal part of brick, pound minutely together, and when it is to be used put in a spoon and pour some wine or vinegar over it and rub the teeth therewith and afterwards cleanse the mouth with some wine or pure water.

Or burn the stems of rosemarine to coal, pound and bind up in silk or other small pieces of cloth and frequently rub the teeth therewith. This will make the teeth white and remove the worms.

Another good powder for black teeth, and cause the wavering ones to grow fast, and cause a good smell from the mouth, is this: Take a quarter of an ounce of burnt alum, tartar of wine, red corals one half ounce each, coal rosemarine, cypress stems, sardel and sarcocolla, half an ounce of each, well pounded together and rub the teeth therewith.

THE EIGHTH CHAPTER.

Dormitation is an ailment of the teeth acting in a like manner as it happens in a hand or foot when it is benumbed.

For this malady, if it arises from having taken into the mouth very cold substances such as snow, ice or cold water, then use the fat of a ram, applying it to the teeth.

Take a pound of good wine, rosemarine, salvey, flowers of camomile, half a handful of each, and strain; take it in the mouth warm and rinse it.

Or take pink, ginger, muscate and pepper, a little of each and put them in a little bag of a finger's length, then for half an hour in burnt wine, and then on the benumbed teeth.

THE NINTH CHAPTER.

FOR UNSTEADY TEETH.

This condition is called *dentincommocro* and relates to the teeth when they become loose and threaten to fall out prematurely. (*Avicenna* and *Mesne*, *capitibus proprius*). This may happen as a consequence from debility and weakness of the gums, or change of the bases sustaining and supporting the teeth, or it may happen when a vitiated fluid is pouring down from the head to the gums or roots of the teeth doing them damage; or else from diseases of the stomach when bad fluids arise therefrom and injure the gums. *Mesne* says (*prima parte, sectionis prima, capiti propria*) there are principally three ways for purging off humidity arising from the head, or the vapors from the stomach. First with medicine, each one, according to the greater or less degree of humidity. This is done by medicinal pills which clean the head.

Then dry off the humidity from the gums and apply convenient and appropriate medicine such as incense, bertram, ground onions and mint or louse weed, and the like, boiled in vinegar and held in the mouth by all of which the humidity will be dried up.

Thirdly, by applying medicine which will remove the humors from the gums and cleanse them. This is principally effected by *mastix*, if boiled with roses and grated flowers, then washing and rinsing the mouth therewith.

But when teeth become loosened or rickety from a beating, a fall or the like, they must be fastened to the firm and uninjured ones by a silk or gold thread in connection as *Cornelius Celsus* says, "with medicines that cause filling up and contraction, such as wine in which gall-apples have been drenched, or take half an ounce of gall-apples, myrrh one ounce, bark of pomegranate, common iris, in Latin called "*yreos*" half an ounce of each, boil together, rinsing the mouth and rubbing the gums therewith.

Or *laudanum* mixed with *mastix* to be used on the gums.

Or ashes of burnt hartshorn, or shaved hartshorn, rubbed on the teeth and the mouth washed with it, will fasten the teeth.

Also olives boiled in water will fasten the teeth, and no less will rinsing the mouth with oil of olives, fasten and improve hollow teeth.

Or take gall-nuts and the shells wherein acorns are growing, alumen seeds, peel of pomegranates, all in equal parts, pound them together and make a powder, put such powder in the mouth mornings and evenings and apply to the gums close to the lips, which is very good for fastening the teeth.

Or take roses, green plums, unripe berries of grapes, dry them in the sun, compound them into a powder, mix with honey and apply them to the rickety teeth.

Or take laudanum and powdered mastix, mix both with licio, apply to the teeth, and it will fasten them.

THE TENTH CHAPTER.

FOR WORMS IN TEETH.

For worms in teeth take seeds of the common henbane, leek and onion and boil together in vinegar, then take these seeds and pound them together with the fat surrounding the kidney of a goat; of this mass prepare small cakes of the size of beans, put under a funnel with a live coal and admit the smoke to the affected teeth. This will kill the worms therein.

Or take a little verdigris and twice as much honey, mix well and rub it on the teeth.

THE ELEVENTH CHAPTER.

FOR ULCERS, STENCH AND ROTTENNESS OF TEETH

If the gums are affected by ulcers thoroughly press them out with the fingers. If this should prove of no avail use a delicate and sharp cutting instrument to slit them open and allow the matter to ooze out, and then wash the mouth frequently with vinegar or wine boiled up with honey.

If the gums have a bad smell take some cinnamon, cloves, white frankincense and rub the teeth therewith. But if they become rotten take a quarter of an ounce of alum, half an ounce of honey, mix together and with it rub the gums. Or ground

onions together with vinegar and licio juice kept in the mouth invigorates the teeth and removes the rottenness (sponginess) of the gums.

But where rottenness of the gums is gaining headway (*Mesne ubi supra*) it is advisable in the first place to purge the body, then thoroughly cleanse and dry out all putridity of the affected part with vinegar and squills until sound flesh begins to grow. If the rottenness penetrates the root and cleansing causes much pain it may be assuaged in the first place by rose oil, the white of an egg or milk, whereupon burn off all puridity with copper iron or red hot gold, and then apply to the burnt spot some butter with rose oil, soon after which incarnate with Egyptian liniment to consolidate, etc.

THE TWELFTH CHAPTER.

HOW TO EXTRACT UNSOUND TEETH.

If the pain can not by any means be assuaged, then in order that the other teeth may not become affected extraction must be resorted to, which must be performed by an expert in this line (*Mesne* in the proper chapter on Extraction of the Teeth) for great injury may be done by extracting a tooth in an improper manner. Therefore it ought not to be done at the greatest point of pain but at the time when it begins to diminish. Then the master with a suitable instrument should free the sick tooth from the gums so as not, at the same time tear them off, and aside from the pain inflict other incidental troubles. The gums being now profoundly separated from the tooth it must be well shaken so as to become quite rickety. Then extract in a gentle manner, and not in a hurry, so as to avoid breaking, splintering or distorting the jaw bone, as occurs once in a while by unexperienced men, especially when the tooth is standing in the upper jaw, for it is very liable to injure the eyes if any tooth be extracted in an unwise manner.

But if a tooth be hollow or perforated it ought to be filled with lead, tin, silver, or whatever is fit for the purpose, so that when it is taken by the tongs it may not break or collapse.

It must be drawn straight and forward and not to be bent

aside, otherwise the root might break and the jaw bone be hurt.

After the tooth has been in this way extracted diligently examine whether or not some small pieces of bone have been separated from the jaw, and if any are found they should be carefully removed, but if the gums interfere to prevent, they must be cut deeper so that the splinters may be successfully taken out.

The marks by which we recognize whether the jaw bone has been hurt or broken are when there is unusual bleeding from the gap from which the tooth has been taken, and such a swelling of the parts covering the jaw as to prevent one's opening the mouth, and the socket begins to fester and suppurate.

If no other damage appears put cold vinegar in the mouth in which gall-nuts and pomegranate flowers have previously been boiled.

Some being averse to extraction, used to burn the offending tooth as follows: They take a fine iron adapted to the purpose and make it red hot, then take a small iron tube prepared to receive the hot piece of iron without warming it up, then inserting the hot iron, which protrudes a little at the lower end, the bad tooth is burnt. But if the tooth is hollow they insert the red hot iron into that hollow. Such burning is very good and not dangerous, for it effects relief from pain, and causes the tooth by and by to crumble away without causing any pain. Some again instead of iron take the kernel of a nut, or a little olibanum, making this red hot and putting in the hollow or cavity of the tooth. Or take the fat of a lean frog and rub it on the tooth which will break it and cause it to fall out without any pains.

THE LAST CHAPTER.

HOW TO PRESERVE GOOD TEETH.

He who wishes to retain good teeth for a long time must refrain from things as above referred to in another chapter.

Every morning as soon as you have left your bed take a piece of rough linen, pass it over your teeth inwardly and outwardly, clean and rub them therewith once or twice. Such rubbing

invigorates the teeth and gums, purifies and prevents putridity. Then take salt and rub likewise, and you shall keep your teeth white, fresh, firm and healthy.

Or take salt and honey mixed together in a pot, burn it to powder and therewith rub the teeth.

Or take myrrh and alum nicely powdered and rub the teeth therewith.

Or take burnt alum mixed with vinegar, wash your mouth therewith.

Or take myrrh boiled in wine, wash your mouth therewith. This strengthens the teeth and preserves the gums and prevents them from becoming stinky, and removes humidity.

In fine, after eating rinse your mouth with some wine or beer so as to remove every thing liable to attach to the teeth, and what would make them putrid and stinking and spoil them.

Haughtiness, Magnificence and Pride will be removed by bad luck, [adversity].

MAYENCE, BY PETER JORDAN, OF THE LEATHER BREECHES, IN THE YEAR 1532.

Not So Bad.

The news has arrived that the official reports from all the Prussian clinics and pathological institutes on results of treatment with Dr. Koch's "tuberculin" have been published by the Ministry for Public Instruction. It appears that the results were much better than was believed. From the middle of November to the end of December 2,172 persons received injections, the number of injections being more than 17,500. Of these patients 932 had tuberculosis of the lungs, 120 tuberculosis of other internal organs, and 700 external tuberculosis. Of those suffering from tuberculosis of the internal organs, 13 were cured, 171 considerably improved, 194 improved, and 46 died. Of 708 patients suffering with external tuberculosis 15 were cured, 148 were considerably better, 237 better, and nine died.—*Exchange*.

COMMUNICATIONS.

Nitrogen a Necessity in the Development of the Teeth.

BY W. H. WHITSLAR, M.D., D.D.S., YOUNGSTOWN, O.

Destitute of taste, odor, or color, and a non-supporter of combustion, nitrogen one of the elements of created beings presses forward as one of the prime factors of our existence.

Pertaining to physiological life nitrogen supplies a vast territory in constructive and reconstructive measures; pertaining to its usage by man in medicine its benefits are by no means meagre.

Man is ushered into this world a delicate but wonderfully constructed being to be assisted by a tender and careful nurse, Dame Nature; but her efforts are often thwarted by human agency through lack of care or knowledge.

The infant, as soon as it is delivered from its mother's womb, becomes surrounded by a different medium than that in which it heretofore existed; it is now æriform. Oxygen is no longer supplied through the blood of the mother, but this æriform medium, commonly called atmospheric air, gives a larger quantity than has heretofore been given to the child. The quantity is limited, however, by nitrogen, and such is the provision of nature or else there would be a rapid consumption of tissues and a short life would be expended. One part of oxygen is limited by four parts of nitrogen being mixed with it but *not* in a state of combination. It is a remarkable fact that either upon the high mountain or upon the low plain this property of oxygen and hydrogen exists. Nitrogen is, however, in a state of combination as a necessary constituent of the tissues of the human body. It is found in various forms and in considerable quantity. In the bones of a child thirty-three per cent. is ossein, which is nitrogenized material. The ossein in the bones of woman is 27.61 per cent. and in man 20.42 per cent. according to Bibra.

In the blood there is 1 to 2 per cent. of nitrogen (Foster), and in lymph 1.12 to 1.82 per cent. 100 volumes of lymph (Hammarsten).

In the excreta of the body is found considerable nitrogen, some two or three hundred grains being discharged daily by the kidneys alone. This is accounted for because quite a portion of the food entering the body is not fully digested. From this great loss it is evident that the supply must come from some outside source (1) the atmosphere and (2) the food. Experiment has shown that it is not consumed or absorbed in the act of respiration, but a certain amount is swallowed with the food and absorbed by the gastro-intestinal mucous membrane.

Food containing nitrogen must then be practically the only source of the constant supply which is essential to maintain the body in a normal condition.

Nitrogenous foods are those containing albumen chiefly, examples of which are white of eggs, casein, legumin, gluten and syntonin. Collagens are nitrogenous foods and are bodies that yield gelatin with ossein as an example. Ossein is a large per cent. of the organic matter of a tooth.

Vegetables yield albumen. Those rich in albumen and nitrogen are cabbage, asparagus, cress and mushrooms. While it is observed that nitrogenized food is favorable to the occurrence of inflammation, and scurvy seems to be caused by an absolute excess of nitrogen in the food, yet children frequently suffer from deficiency of nitrogen.

In anæmia and chlorosis nitrogen is needed and in such cases the teeth come late and do not resist decay. Addition of oatmeal, barley, or rice in the food often bring about a marked improvement. Good food is an essential part of the treatment in all cases where there is a deficiency of tissues, and especially so in children since they need more during the years of their development than at the adult age. Hence, due allowance of meat, oatmeal, corn, beans, peas, and other foods containing nitrogen should be given to construct healthy tissues of the human body. Among these tissues the teeth are of great importance and nitrogen is a necessary factor of their development.

Dr. W. H. Atkinson.

The following is part of a paper entitled "As we go marching on," by J. F. Siddall, Oberlin, Ohio, read at the 32d Annual Meeting of the Northern Ohio Dental Association, of which Dr. Atkinson was a charter member.

"It remains for me to say a few words, in closing this paper, about the most honored member of our Association. I first met Wm. H. Atkinson in the Autumn of '57, or the Spring of '58, at a Dental Convention in Cleveland; then, again, I met him in a National Convention at Cincinnati, the following August, and I have remembered to this day more of Dr. Atkinson's appearance and things he said and did at that meeting than of any one else.

He seemed to be a stranger and would have taken but little part if his striking appearance and manner had not attracted attention, as always was the case with Dr. Atkinson. After those meetings he always remembered me, and seeing that I was anxious to learn, time and again the utmost cordiality, never failing to ask me "to come and look on."

Never in my life was I more thankful than for those opportunities. One incident I will relate that occurred years after, at a meeting of the State Society: A very delicate young woman was brought into our meeting with a large tumor in her mouth. She was seated in the center of a large circle of dentists who gathered about her.

Dr. Atkinson very carefully and rapidly made an examination of the case, and before he began his report to us dentists, he placed his hand gently on the head of the poor girl, who was a terrible looking object, and in a low tone of voice that I was close enough to hear, in a few simple words explained first to her the case, and assured her that Dr. Hamilton or any other good surgeon could with no difficulty whatever entirely remove the tumor, and that there was nothing to fear. The poor deformed sufferer who for a long time had been too shocking a sight to show her face even to her friends now animated with a new born hope and a beseeching look, together with the noble figure of Dr. Atkinson as he stood by her side, addressing the Society, with his hand still

lovingly resting on her head like a tender father's, made a picture in my mind never to be forgotten.

The first thing I thought of when I heard of Dr. Atkinson's death was that scene, and the words of our Saviour, "Inasmuch as ye did it unto one of the least of these, ye did it unto me." How I wish our friend Dr. Barnes could have been there with his "Kodak," and could have given us that picture. It would have made a model indeed for an artist. This was but one, no doubt, of a great many incidents in the life of the good man where his skill or his counsel was so faithfully and lovingly bestowed as to be to the world a good representation of the Great Physician in his matchless power that never was withheld where there was human woe or want to relieve.

Dr. Atkinson also knew the blessedness of giving. How often have we heard him say, "Freely ye have received, freely give." With him it was give, give, give; his time, his thought, by day and by night, and with it went always his love, but last and least of all in his estimation often went his bottom dollar. This he gave so easily and so often that it was no trick at all.

The real value of such a life as that of Dr. Wm. H. Atkinson's to this association can not be estimated, to say nothing of what his life has been worth to other societies and to the profession at large. I once heard it remarked that Atkinson had impressed himself on the dental profession of the entire world as no other man that lived had done. This may be true or it may not.

We shall never be able to estimate the value of such a power as this man has been in our profession. We shall look in vain now for his remarks, so unlike any other man's, in the reports of Society proceedings in our Journals. His noble presence, an inspiration wherever seen, we shall behold no more. That manly form has gone, but who for a moment doubts that his noble "soul goes marching on" and shall not we who knew him, or knew of him, or have in any way been influenced by his teaching, and his life, all be the stronger for Atkinson's having lived, and for his still living; and shall not we, here and hereafter, with a firmer step and a brighter hope take courage "as we go marching on."

THE POSSIBILITIES OF MEDICINE.

At the recent commencement exercises of Long Island College Hospital Professor T. Gailliard Thomas, in giving the concluding address, spoke as follows :

Even in these unsentimental days many men chose their occupations more because of attending dangers and chances of heroism than from any less romantic notion of their usefulness. Thus the youth of a smiling country are persuaded to risk their lives on the sea, and the painter in the hope of fame starves at his work in the attic. Young men would willingly lay down their lives for the glory of a Sheridan or a Farragut. Arms, literature, art, law, divinity, all had bright and glorious rewards for those who had the courage to aspire to them and patience to suffer for them, the industry to work for them and the genius to obtain them. Think you, continued the speaker, that the science of medicine, founded 400 years before the birth of Christ the chosen work of our Saviour himself, the most far reaching and benign of all modern pursuits, stands alone in its inability to reward its votaries? Far from it. Look back with me into history, and I shall not be called upon to take you into the fields of ancient history, even, and it will go hard but I shall make you agree with me that of all callings, all pursuits, all professions, the rewards of medicine are greater, more lofty, more desirable and more enduring than those of any other in existence. His hearers would agree that he who had done the greatest good for his fellowman had, in the doing of, won the greatest rewards in earth's possessions, even if no mortal man knew of the deed but him. The forces of civilization work hand in hand for the common good. All the forces of intelligence, law, the fine arts religion and medicine were all contributing their quota. Hygiene—the science of cleanliness—as taught by medicine, had wiped off the globe the terrible scourges which made the dark ages so terrible. Cholera, the dread monster, had been almost totally shut up in its birthplace in Asia and checked in its wanderings over the world. Quarantine had transferred yellow fever from a universal menace into a local distemper. Small-

pox had been lashed to hell by the agent vaccination, and like a whimpering hound was held securely in leash. The work of medicine had far more numerous conquests than even those enumerated. So wonderful, so startling, so extraordinary were those results that he feared his non-medical hearers would suspect him of boasting if he read the full record of the proud achievements of medicine during the past hundred years. But conquests in the past in no wise curtailed the possible achievements in the future. One great initial discovery ever opened the way for numberless others equally as great to be made. This was illustrated by the microscope, by the telescope, by the circulation of the blood, by steam and electricity. The discovery of the transmission of disease by bacilli had brought the students of to-day upon a plane far more elevated than that which even the youngest of their teachers occupied upon his graduation. The present students' possibilities in medicine were proportionately greater than his were, and it was their function to profit by their good fortune.

The speaker declared if he had the power to accomplish one wish in his life he thought he would select the destruction of the process by which alcohol was created. If that were denied him the power of stamping out forever those contagious diseases which fill our graves with curly heads and dimpled cheeks and our homes with sorrow that knows no comforting. He would destroy those terrors of the household, scarlatina, diphtheria and the host of contagious maladies which went hand in hand with them. The first of these wishes was impossible of attainment. But not so of the second. The way of its accomplishment was open to every man with willing hand, determined mind and intelligent brain. Surely it was not too sanguine a prediction that the next century might see the extinction of contagious disease. Elaborating this point, the speaker pointed that since 1799, the date of Jenner's discovery of vaccination for small-pox—and unless the claims of Pasteur and Koch should prove valid—no other contagious disease has been prevented by the elaboration of the brilliant idea of inoculation. Diseases were also checked by certain drugs which seemed to have the power of

destroying their bacilli cause; but with these but two diseases had been checked in the history of medicine. Here was the field and it remained but for the student of to-day to work in it. There was everything to accomplish and the road was made clear before him. After formulating his suggestions in detail and giving illustrations of how genius had labored long to solve some of the simplest problems in life, the speaker said in conclusion :

The motto of the New York Academy of Medicine, coming down from mythological times, is this: "*Homines deos accedunt hominibus dando salutem.*" "Men most nearly resemble the gods when they afford health to their fellowmen." If, as seems now highly probable, Robert Koch should succeed in curing and preventing tubercular disease in its various manifestations, what greater reward could he possibly ask for than the pleasure which he must feel when the reflection to which this motto gives rise comes to his mind. The reward of the physician whose happy discovery stamps out a disease which before his day slew its thousands, comes from the hand of no Emperor, his glory from the appreciation of no applauding multitude, his renown from the pen of no fulsome historian. For him the victor's crown comes from the hand of the immortal God, his glory from the satisfaction of doing a great and glorious work, his renown from the gratitude of his fellowmen! The "great awakening light" which blessed the eyes of Abou Ben Adhem, not the imperial purple which decked the shoulders of the mighty Julius, constitutes his diadem and causes a halo to shine around his head! In the golden days of chivalry, when a young knight was to receive the accolade and become the defender of the weak and the redresser of wrong, he was required to spend an entire night in cathedral or other solemn place, reflecting upon the purity, the beneficence and the grandeur of his new office, and in forming the noble resolve to make of it no trade, but to administer his duties with the love of a man in his heart and the glory of God in his soul. Let this night and these exercises bear to you the relation of that vigil night of old! Medicine is the noblest of professions, the meanest of trades. Unless you can live lives of

purity, of virtue, of honor and of honesty, seek a livelihood elsewhere and insult not the gods by striving through base methods and ignoble ambitions to resemble them. Will you not now fully agree with me when, in closing this address, I ask you whether the possibilities of medicine are not really greater than those of her sister sciences and arts? Will you not accord in my postulate that arms, arts, literature, science, all have their rewards, but that not one of them surpasses in the magnificence of its gifts those of which the god-like science, medicine, is capable? When, a quarter of a century hence, I meet with one of you, as we both wend our ways along the highway of life, my locks as white as the driven snow and yours as white as mine are now, come up to me, report yourself as a member of the graduating class of the Long Island College Hospital of 1891, and tell me which one of the beneficent discoveries which the next twenty-five years are sure to bring forth has been the means of causing you to resemble the gods and enrolled your name "among the few, the immortal names that were not born to die," and I, recalling at once to mind you and this pleasant evening which has made us acquainted, will bid you God-speed, even as I do to-night.

The Microorganisms of Cancer.

Dr. Schutz(*Centralbl. f. Chir.*, January 24th, 1891), whilst fully recognizing the appearances which have been described by several authors as occurring in cancer, does not, however, regard the bodies in question as living organisms, but thinks it far more probable that they are formed (in part, at least) of red blood corpuscles which, both in carcinoma and sarcoma, find their way freely into the tissues and assume various disguises, so that their origin is not easily determined. Another source of the so-called organisms depends, he asserts, on the alteration of the cells of the various tissues which take upon themselves amœboid movement, and congregate oftentimes in masses; and it is by the alteration of these masses that the so-called sporocysts are formed. So far, he is of opinion we are as far as ever from finding the true organism which produces cancer, even supposing that it exists.—*Brit. Med. Journal.*

SELECTIONS.

Heredity—Some Reflection on Its.

BY J. S. DORSET, M.D., BONHAM, TEXES.

Late Superintendent Texas State Lunatic Asylum,

Heredity is that biological law by which all beings endowed with life tend to repeat themselves in their descendants. "Will grapes grow upon thistles, or figs upon thorns? Can the offspring of the low and vicious, ignorant man be but like the fruit of the tree which brought it forth? That there are exceptions there is no doubt, but it is not the rule, and it is as hard for one born and raised in the environments of low degradation, morals and vice to be a pure, moral, refined, scholarly gentleman as it is for a "camel to pass through the eye of a needle."

Yet there is a species of moral depravity found in the children of the most refined; even the children of the clergy depart from their early training of precept and example of their parents, and the number is great. If we will look back, perhaps no farther than the grandfather, the traits so much to be deprecated may be found. A man may inherit his ancestor's intellect, his honors, his estate; but he must also take with these his diseases, vices, and other moral and physical obliquities. "The parents have eaten sour grapes, and their children's teeth are set on edge." These are some of the laws of heredity which are as immutable and unchangeable as the laws of the Medes and the Persians.

Take the dipsomaniac. While the great desire for alcohol may not develop in his offspring you may find it developed in another direction, such as idiocy or insanity; and if, perhaps, the immediate child may not exhibit mental or physical obliquity, wait; it will crop out in the grandchildren. Dipsomania, which used to be termed as merely a physiological condition, is now recognized by psychologists as a loss of will power, a disease of the brain, inherited or acquired, and the writer asserts, with-

out fear of successful contradiction, it is a disease hereditary as any other, or as any characteristic in feature, limb or trunk.

When a child equally resembles father and mother the case needs no explanation; it is the realization of the ideal law as far as that is possible. When he resembles one parent to the exclusion of the other, this exclusion does not really take place; that parent whose influence appears to be lost may reappear in the next generation, or later. A man may have latent inherent traits of character undeveloped; may marry and have children, and yet not discover the hidden spark; the wind which blows the ashes from the hidden spark of years will come; if not in his generation, it will come, even if later.

Darwin remarks truly that these facts oblige us to admit that certain characters, aptitudes and instincts may remain in the latent state in individuals, and even in a series of individual, while yet we are unable to find any trace of their presence; and on this hypothesis, the transmission of a characteristic from grandfather to grandchild, with the apparent omission in the immediate parent of the opposite sex, becomes very plain. Frederick William I—the father of Frederick the Great—who was noted for his love of colossal men, dealt with his regiment of giants, as stockbreeders deal with their cattle. He would not allow his guards to marry women of stature inferior to their own; and the writer respectfully recommends this rule of Frederick William to all who contemplate taking as serious a step as marrying. But while these guards may have been giants in stature, they may have been Lilliputians in brain. So it will be as well to look well to the mental condition when you select a mother or father for your children. Heredity is a law, a natural law, and we may as well expect to escape co-equal law of nature—death—and live forever, as to dodge the law of heredity. If a man lives he shall die; nothing that has ever been can cease to be. This it is which fixes us in the indestructible law of causes and effect, and by which our poor personality is connected with the ultimate origin of things through an infinite concatenation of necessities. Heredity is but one form of that ultimate law which by physicists is called the conservation of

energy, and by metaphysicians, universal casualty. The subject presents a large field yet unexplored, and for the present I must yield it to others more fitted to cultivate it properly than is the writer.—*Virginia Med. Monthly.*

Hints for the Profession.

BY A. V. BANES, M.D., ST. JOSEPH, MO.

The major portion of our lives is passed in the office, more especially those whose who enjoy a large city practice. How very important it is that we should have everything neat, clean and pleasant. Our patients will wait more willingly if they have a few pictures to look at, a small reservoir containing a few gold fish, and a few ornaments or little brackets might adorn the walls. Our failure or success in a business way depends more on our surroundings than most of us are aware. Intelligent and cultured people look to the environments on entering an office when calling for the first time, and your ability as a flourishing and successful physician will be very correctly gauged by their first impressions. A bright, cosy, attractive office will do much towards making your patients satisfied and contented while awaiting their turn to consult you; and they will look over the daily papers and the few periodicals they may find on the table with a great deal of pleasure. Do not fear that money expended in this way will not be returned a thousand fold. You never see a cheerful, well-appointed office but you find a wide open doctor, well equipped to practice his special branches successfully. You will certainly attract a better class of patrons who are amply able and willing to pay the price of your services.

If possible, have your office and residence together, and then your wife can superintend, and see that your rooms are tidy and clean. Have a bright and intelligent office boy to make appointments and look after the door during your hours; and discard the time-worn slate with the old chestnut, "Return soon." Have your wife keep your books, and give her your calls morning, noon and night. She will make you rich if you trust her.

Keep your private office books yourself. Collect your bills every thirty or sixty days, or take notes every third or fourth month. I find by taking notes and allowing the banks to collect it answers well, as people will pay an institution more promptly than a doctor.

The Use of Rubber Dam.

“I trust that no one is in the habit of using the same piece of rubber dam on different patients, and hence, I only refer *en passant* to the possibility of inoculation and the transmission of disease from one patient to another. This is notoriously probable when the rubber dam has been used in a mouth affected with pyorrhœa alveolaris. Indeed, it is possible to transfer the disease from one part of the mouth to another in the same person; hence, it should not be used a second time in the same mouth. Of course, I understand that the rubber dam is always washed before a second using, yet we know that disease germs are subtle and some of them even microscopically undistinguishable. Furthermore, it ought not to be used a second time in the same mouth because of the unpleasant sight of using a thing like that which does not look fresh; the dam is at best unsightly, and taking it from a book of blotters, or from an envelope with the patient's name on the same, or from a row hanging on the wall with the patient's name stamped on each piece of rubber, or picking it out of the waste basket, memory and identification of the holes in the rubber acting as a guide for the identification of the rubber—neither of these methods is pleasant and should, therefore, not be resorted to, the cost of the rubber is almost nominal, and the expense should be considered as much a legitimate one as the gold introduced and also as an essential accompaniment of the filling, the cost each time being from $2\frac{1}{2}$ to 5 cents. Considering an extreme case in which all possible operations may be performed in one I doubt that the expense of rubber dam could be more than \$2.00, which would represent only a comparatively small portion of the entire expense.”

LOUIS OTTOFY, D.D.S., Chicago, Ill.

The Etiology of Tetanus.

In the last number of the *Annales de l'Institut Pasteur* there appears (from the Bacteriological Laboratory of Val-de-Grace) a most interesting paper on tetanus by Drs. Vaillard and Vincent, which appears to throw very considerable light on the subject of tetanus, and to clear up a number of points and observations that have hitherto been enshrouded in obscurity. After describing the organism, and identifying it with that already made familiar through the papers of recent writers, the authors give it as their firm opinion that in cases of artificial inoculation of pure cultures it is always the poison introduced along with the bacillus, and not the organism itself, that acts upon the animal. This, indeed, seems to be probable, as they are able to prove that almost inconceivably minute doses of this poison, which they compare with snake poison, are quite sufficient to produce all the symptoms of most acute tetanus; in fact, it was almost impossible, from some of the cultures that they obtained, to administer a dose that was not lethal.

An exceedingly interesting feature brought out in the course of their work is that in no case was the poison developed as soon as the organism began to grow; in fact, gelatine cultures of the tetanus bacillus were never capable of producing toxic symptoms until liquefaction of the gelatine had commenced, when spores were demonstrated to have been formed, and when the peculiar disagreeable odor so characteristic of tetanus cultures had become perceptible. They associate both the odor and the peptonizing power with the formation of the poison in the cultures. That it was due merely to the presence of the spores that the material was poisonous they demonstrated by heating their cultures to a temperature of 62° C. for a short time (a temperature which is quite incapable of interfering with the vitality of the spores), when it was found that cultures so heated and introduced by inoculation into a rabbit or guinea-pig failed to produce any tetanus, thus proving that although the spores are not killed the poison has been destroyed by the heat. The spores were proved to be living by making fresh cultures from them in artificial media;

after a time they grew luxuriantly, and if left to grow eight or ten days produced another crop of the poison. By simply washing away the poison from the spores with distilled water they also obtained similar results, for, although the spores could still develop and form the specific poison in artificial media, they were, when inoculated, incapable of giving rise to any symptoms of tetanus. From the reaction to heat of a substance they were able to separate, and from its resemblance to the diastases in other respects, they concluded that they have obtained from tetanus cultures the true tetanus poison, a poison, however, that can not be formed by the tetanus bacillus in healthy tissues. The micro-organisms are here so rapidly attacked by the leucocytes that they are rendered *hors de combat* before they have time to form their poison.

It has long been known that the tetanus bacillus could not develop in the tissues except, apparently, in the presence of other organisms, and the suggestion is offered that these other organisms act in one of two ways; they either paralyze the activity of the leucocytes, or they draw off, as it were, their attention and activity from the tetanus bacillus, thus allowing it sufficient time to develop its characteristic products. It is interesting to note that Drs. Vaillard and Vincent consider that in many respects the tetanus bacillus is extremely like the diphtheria bacillus, the method of action on and in the organism being essentially the same in the two cases, the above factors, in all probability, playing a part in diphtheria much as in the case of tetanus; and it is evident that in studying the one poison much light may be thrown on the other. Behring and Katasato appreciated this fact, and combined their forces to work out the question of immunity in these two diseases. It is obvious, however, from a consideration of some of the points that are indicated in this paper, that there are many sources of fallacy that will have to be eliminated before the ultimate explanation of the condition of immunity in protected animals can be given. The facts that this poison is active in such extraordinarily minute quantities, and that micro-organisms are able to grow with such difficulty in the human tissues, allow us to hope that extremely minute

changes in the blood may be quite sufficient to secure the alteration or breaking-down of the virulent poison even when it has become diffused throughout the system. So long as the organism is localized to the wound there is, of course, more chance of coping successfully with the disease although here, as in other diseases, there always appears to be a possibility of the poison exerting such a paralyzing influence on the cells that usually take up foreign substances, that secondary septic conditions may be liable to occur even when the action of the tetanic poison can be antagonized so far as its primary effects on the cells are concerned. One question appears to be set at rest, and that is, as regards tetanus and diphtheria the ptomaines have had their day whatever may become of the products of other organisms. It may be accepted that here, at any rate, we have some subtle poison which although it has not yet been actually separated, has become so far isolated that it may be taken as proved that it is not an alkaloid or basic poison. A most remarkable feature is, that in peptonizing gelatine with the filtrate from a meat-broth culture of the tetanus bacillus, the poisonous properties are lost to a certain degree in direct proportion to the amount of gelatine that is peptonized; this, taken in conjunction with the fact that the properties are not developed until the gelatine begins to liquefy, has led Drs. Vaillard and Vincent to suppose that the same agent that peptonizes the gelatine is the active agent in bringing about the development of the toxic symptoms of tetanus.—*The Lancet*.

“PURE science is the knowledge of principles and deductions. When this knowledge is reduced to a set of precepts, with practical skill as the basis, it becomes an art. When knowledge is made the foundation for practical results to be secured, it becomes applied science. A man may study physiology or pathology as abstract sciences, but when he makes a practical application of that knowledge in the curing of disease, he is engaged in professional work. The practice of dentistry is not, therefore, in any sense, the study of science. Such practice may depend upon certain scientific knowledge, but it is not of itself science.”

DR. W. C. BARRETT, Buffalo, N. Y.

The Names of the Grip.

There is more in a name than Juliet would have us believe, and in medicine especially, we can often learn much concerning the nature and symptoms of diseases that have raged in epidemic form in past ages merely from the names that have been applied to them at different times, and by different peoples. A good example of this is furnished by the strange malady that has been traveling around the globe for the past eighteen months, and which we now call the influenza or grip. The word *influenza* is Italian, and means nothing more than influence. We find the term first employed in the writings of Huxham, who, in referring to the epidemic of 1743, speaks of a fever "*quæ per totam Europam hoc vere sub nomine inuflenza grassata est.*" We see from this word how widespread was the affection, since of all epidemic diseases this especially was attributed to atmospheric influence,¹ nothing less universal than the atmosphere itself being deemed capable of diffusing so widely the *materies morbi*.

On the other hand, the word "grip" (French, *la grippe*), which curiously enough was also first used in the epidemic of 1743, bears witness to the suddenness of the attack, for, although there is some uncertainty as to the derivation of this word, it comes most probably from the French *gripper*, meaning to seize or take suddenly. Other names indicating the suddenness of the seizure were "*le horion*" (the thump), applied to an epidemic in France in the fifteenth century, and "*Blitzkatarrh*," given by the Germans to another epidemic in 1781.

The predominance of catarrhal symptoms in many of the epidemics is shown by this last mentioned name, and also by the terms *catarrhus epidemicus*, *synocha catarrhalis*, *febris catarrhalis epidemic*, *le grand rhume*, etc., applied to the disease by many writers in the seventeenth and eighteenth centuries. "*Russian catarrh*" indicated not only the supposed nature of the affection, but also the region in which it was believed to be

¹ This is the most commonly accepted explanation of the term, though some authorities refer it to a supposed influence to the stars, and the older Italian writers describe the disease as "*una influenza di freddo.*"

endemic, and from which the recurring epidemics were sent forth to visit Europe and America. An obstinate cough was a noticeable sequel of the disease in many of the epidemics, hence we find the names "tussis russa," "epidemic cough," "febris thoracica," "quinte," "coqueluche," "Schafhusten," etc.

An evil conscience is one's first accuser, and herein lies the reason why men have always regarded epidemics as the chastisements of an offended deity. And it is only within a short time that we have learned that sins against sanitary laws bring more speedy, and just as certain punishment as do offences in the moral order. The sufferers from influenza were, of course, on the lookout for the sin which had brought the visitation upon them, and they usually found it, their only difficulty being in pitching upon the one sin most deserving of chastisement among the many to which they were given. In one epidemic occurring in Paris, which was called "the blow," it was believed that those only were attacked who had sung an indecent song that had happened to have a great popularity just before the outbreak of the grippe. So the poor sufferers had not only to endure the pains and discomforts of the disease, but also the jibes and reproaches of their dear friends for having been found out in the sin of singing an obscene ditty. History does not state that anyone regarded himself as unjustly punished for an offence he did not commit, and very likely there was none such.

There were many other names than those we have mentioned which were applied to the influenza in one epidemic or another, but most of them had only a local meaning, the significance of which has been lost to us. Among these we find the "dunce's malady," "pumpkin disease," "polite sickness," "Spanish pip," "new delight," "petite poste," "folette," "coquette," "the general," "fashionable fever," "turning disease," "flosse kolen," "Burzelen" and "disease of the bald-heads." In the island of Martinique it was thought that the disease had been brought by the French soldiers, whence it was called "le chapeau quarre." Often people gave up in despair any attempt to find an appropriate name for the affection and called it simply "the epidemic," "the disease," "the disorder" and the like, terms

about as definite and descriptive as "it," which was the appellation chosen by a medical writer in a neighboring city in a recent contribution to one of the New York dailies.—*Editorial Medical Record.*

THE ACTION OF COCAINE ON THE CIRCULATION.—As a result of painstaking study in the direction of ascertaining—experimentally—the exact effects of the drug cocaine upon the circulatory system, Dr. Edward T. Reichert (*American Lancet*) arrives at the following important conclusions: 1. Very much depends upon the individual susceptibility in noting the medicinal effects. 2. Repeated small doses first decrease then increase, and finally decrease the pulse-rate. 3. The cardio inhibitory centres are always affected. 4. The arterial pressure is always increased, unless after large doses, when temporary decrease may happen. This increased arterial pressure may continue longer than the period of acceleration of the heart beat. This increase is chiefly due to stimulation of the vaso-motor centers, to some stimulation of the vessel-walls, and to the increased pulse-rate. These and other noted results show, 5, that cocaine is a decided circulatory stimulant.

"In Simplici Salus."

Hippocrates proclaimed that "accurate observation of facts, and correct generalization from them, forms the only rational basis of medicine," and so we are taught to-day. To discover truth in science, the most learned will admit, is very often difficult, but in no science is it more difficult than in medicine. Independent of the common defects of medical evidence, our self-interest, our self-esteem, our prejudices, our likes and dislikes, and not infrequently our ignorance, only too often hide the truth from our view, and we ascribe too much to art, and too little to the operations of nature. Thus the mass of testimony is most with art, and although we believe we are right in our reasoning, we only pursue the old, time-honored course that has been instilled into our minds through training and education. The

best and safest practitioner is he who knows when to abstain from acting as well as when to act; in other words, who has learned when and to what extent the case can be left to the salutary processes of nature. The tendency to recovery which manifests itself under different modes of treatment, and even in spite of opposite modes, has induced in some minds a degree of skepticism as to the utility of any remedies. That the opposite error to that of mischievous or meddlesome activity may likewise be easily carried far is at once apparent. It does not follow because the majority of diseases, such as continued fevers and acute affections generally get well, with or without the administration of medicine, that therefore the disease should be abandoned to what Cullen calls the "*vis medicatrix naturae*."

A knowledge of the circumstances upon which health depends is one of the most important parts of the moral and intellectual education of the true physician. The essentials necessary to the attainment of health are:

1. The inheritance of a healthy constitution.
2. Pure atmosphere and water.
3. Wholesome food in quantity and quality.
4. Freedom from contagious and infectious diseases.

Either of these primitive essentials of health is controlled but little, if any, by the individual efforts of man. To medical science solely must mankind look for the foundation rock from whence the principles governing these essentials of nature's law are to be revealed by virtue of intelligent, progressive, active, zealous and truly conscientious physicians, who will, sooner or later, succeed in educating the legislator to understand and realize the fact paramount that only through the State or municipal government can we ever hope to see mankind enjoy these blessings. Nature puts into our hands the means of preserving health and this gift involves responsibility. Health will be counted among those talents for the use of which we are to answer to our Creator, and it is our duty to become fully acquainted with the laws which regulate and govern it.

Experience teaches that disease, as well as health, is controlled by nature, that her laws must be consulted if we would practice

successfully. But alas! how often do we find—even in this most enlightened age of science—the truth as expressed by the late Prof. Chapman, “That many physicians are given to profound thought, and possess extensive knowledge, united with sterling honesty, being by nature endowed with the highest order of talents, and yet be wanting in good common sense.” The most experienced, close observing, earnest searchers after truth in nature’s operations, most skillful and best physicians, hesitate above all things to give large quantities of medicine, and proclaim the best way to help the invalid to health is simply to “assist nature.” The writings of Drs. Benjamin Rush, Shippen, Chapman, Radcliffe, Bostwich, Dumoulin, and Oliver Wendell Holmes, Sir Astley Cooper, Sir Wm. Gull, and numerous other shining lights, are too well known to need reiteration, but are simply called to mind as evidence that the more matured minds in the profession are guided by the light of nature’s *in simplici salus*.—Editorial in *Amer. Asso. Jour. of Medicine*.

Cystoma of Jaw.

Mr. I., 46 years old, presented himself at my office, having a tumor involving the left half of the inferior maxilla. The growth, he says, began several months prior to his coming for treatment, and had attained considerable proportions. The cyst extended from the angle of the jaw, almost to the median line at the symphysis. The swelling was first noticed upon the lingual portion of the jaw, opposite the second inferior molar. It gradually increased in size, and then made its appearance upon the buccal surface and extended, anteriorly and posteriorly, involving nearly the whole left half of the jaw.

No reasonable doubt can be entertained but that the teeth are in most cases, the primary cause of such mischief. But the question of the precise manner in which the morbid conditions are developed is more difficult of solution. There is no disputing the fact that foreign bodies, such as the apices of teeth, broken off during extraction, or small spiculæ of bone, attracting a serous fluid around them, finally become encapsulated or encysted and gradually extend to great proportions.

Cystic tumors of the inferior maxilla are by no means of common occurrence, and present special features, such as slowness of growth, absence of severe pain, glandular involvement, or constitutional impairment, except such as attends any tumor interfering with mastication or deglutition. The manner of discovering their true nature is by the aid of the exploring needle. In the present case I wish to say that the patient being possessed with a very fine set of natural teeth, none of them being devitalized, imagined they could be used for almost any purpose other than that for which they were intended.

He placed a hard shellbark between the two second molars of the left side of the jaw and cracked it. Immediately after, he experienced a slight pain in the lower tooth. This was evidently the cause of the formation of the tumor. The excessive pressure upon the cancellated bone injured the endostium, producing an effusion, and that is what formed the nucleus for an extended, but slow, inflammatory action, with the consequent results.

Obviously, there is but one sort of treatment for these tumors, and that is surgical. When they have not extended or reached to such proportions as to completely destroy the contour of the bone, I make a free incision to evacuate the contents. In the case being described this consisted of a dirty, bran-like substance, mingled with a glairy blood-stained fluid.

I made a further examination with the exploring needle, and discovered another but smaller cyst posterior to the one just opened, and having its connection by a small semis opening into the first one. I evacuated its contents also, and proceeded to wash out the cysts with tepid water. I then injected a stimulating solution of dilute tincture of iodine, and packed the cavity with gauze, which I removed, repeating the injection of the dilute iodine for a few days, until complete closure was accomplished. No internal medication was required in this case.

BY THOS H. MOORE, D.D.S., M.D.

Philadelphia.

Items Worth Reading.

“One of the worst conditions that we meet with in the various aspects of pyorrhœa alveolaris is where, through the ravages of the disease, death of the pulp has ensued and there is added to the original septic matter the pus from the broken down pulp. This condition generally takes place without any warning to the patient; in fact, it is impossible to learn at what time the death of the pulp takes place.”

DR. M. L. RHEIN.

Baltimore Letter to Journal of American Medical Association.

(Extract.)

I send you the following compositions on George Washington, which are veritable curiosities in the way of preliminary accomplishment, showing as well as anything could the need of some standard at least of requirements in those who undertake the study of medicine. They were handed in by two candidates for matriculation in one of our medical colleges, one of whom had been a teacher of a public school. I am glad to say both were rejected.

I. “George Washington When a boy could not tel a boy could not tel a lie he cut one of his fathers Chury trees with his hatchet when Father called him and aske who cut the tree he said I cut it with my hatchet he became a man of zeal and industry was belove by all who knew him he fought many battels and by his cunning defeated Nepoleon he married became the first president of the United states lived to a good old age.

Oct. 1st”

II. “jeneral Washington was born in Virginia he was a truthfull Boy a good Chresttian a noble man in war & in peace he was the frist President of the United States of Amarica he was and considered the fathar of our country By his bravery whe are a íree and independent people to think and act as whe think Best he was honest in all his ways.”

I give them as near literally as I can.

Yours truly,

E. F. C.

Mouth of the Infant at Birth.

The *Edinburgh Medical Journal*, November, 1890, contains a paper of unusual interest by Dr. J. W. Ballantyne, upon the anatomy of the head of new born infants, in which he gives the following description of the oral cavity :

In all the sections of the heads of infants which I have made, the mouth was seen as a potential cavity, the dorsum linguæ came into contact with the vault of the palate above, and the tongue was in apposition to the inside of the cheeks and gums laterally. In all the specimens, also, the tip of the tongue lay upon the upper surface of the lower gums. It is a fact worthy of note, that even when the mouth is tightly closed the gums do not come into contact. This fact, which is revealed by frozen sections, Symington specially dwells upon, as showing that provision exists at birth for a considerable development of the alveolar, arches and teeth before the gums of the two jaws can really meet. I have not, however, been able in my cases, to show that the distance between the jaws is so great as Symington found it, namely, six mms., for in the specimens examined, it measured from two to four mms., and in one case the jaws were in contact. Another peculiarity about the buccal cavity in the new-born infant, is the fact that the lower jaw lies in a plane posterior to that of the upper jaw. In a sagittal vertical section of the head, the anterior surface of the lower jaw is seen to be in the same vertical plane as the posterior surface of the upper jaw.

As life advances the jaws come into line with each other, and with the development of the teeth, the space between the gums disappears.

If the tip of the tongue be raised in the case of the new-born infant, two folds of the mucous membrane are seen, one of which, the larger and outer, has a dentated margin, and is called the *plica fimbriata*; the other, which is smaller and is situated nearer to the middle line and the *frænum*, is known as the *plica sublingualis*.

In one of my cases, there was found under the tongue, on the right side, a congenital ranula, which contained a small quantity

of clear limpid fluid. H. Ranke has, in a recent paper, (*Ein Sangpolster in der menschliche Backe*, *Virch. Arch.*, Bd. xcvii, p.p. 527-547) drawn special attention to pads of adipose tissue, which exist in the cheeks of new-born infants, and which are, as Symington shows, present also in the child.

Ranke was led to the study of these bodies by the fact, that in a child one year old, in a state of great emaciation from continued diarrhoea, the cheeks presented a swollen appearance. This swelling, he found to be due to the presence of a distinctly encapsulated mass of adipose tissue, the so-called sucking pad (*Sangpolster*).

He made sections of the face, coronal and horizontal, in the new-born infant, and also dissections from the skin surface inwards, and found that these pads were distinct structures which were not continuous with the subcutaneous adipose tissue. In several of my sections the relations of these pads could be seen, and they were always easily differentiated from the surrounding fat, from the fact, that on putting the sections into spirit, the pads changed their color slightly, and shrank from the adjacent tissues in one case to the extent of being easily removable.

Each pad lies in the neighborhood of the duct of the parotid gland, upon the buccinator, and partly upon the masseter muscle, and has superficial to it the *musculus resorius of santorini*. An offshoot from the pad passes into the sphenopalatine and zygomatic fossa.

Each has a vertical diameter of about 2 ctm., a transverse of about 1.5 ctm., and an antero posterior of a little over 1 ctm. They are found not only in the infant, but also in the child and adult, and are present even when the adipose tissue in other parts of the body is extremely small in amount. They are, no doubt, connected physiologically with the act of sucking, hence the name of sucking cushion given to them, and probably act by distributing equally the atmospheric pressure, and preventing the drawing inwards of the buccinator muscle between the gums during the efforts of suction when a vacuum is created in the buccal cavity.

Simple Method for Controlling Epistaxis.

Dr. W. W. Parker, of Richmond, Va., says in the *New York Medical Record*: The plan of arresting hæmorrhage from the nose, which I here describe, I have used for thirty years without one failure. When I first began to practice I used Bellocq's instrument but found it painful, and in small children exceedingly troublesome of application. The little device which I use is made of fifteen of the long threads of patent lint, size three and one-half or four inches long, which I double on themselves and tie in the middle, and let one end of the string be six or eight inches long so as to pull the plug out when necessary. When doubled on itself it looks like a "comet" in miniature with a nucleus and thirty tails, or twice the number of threads used. A probe is pressed up against the centre and is passed back upon the floor of the nasal cavity and pushed on till you reach the posterior nares. This will be known both by the resistance and the length of the probe, or the depth which you have reached. Then slowly withdraw the probe and plug the anterior nares and you have arrested the bleeding. These twenty or thirty ends floating in the blood at once coagulate it. The passage of the soft lint gives no pain whatever. If lint is not at hand I use the largest size spool cotton. The plug is removed in from twenty-four to forty-eight hours. It gives no pain and the patient is willing for it to remain. The other methods are all painful in execution, and the discomfort while the plug remains is very considerable.

Campho-Phenique.

As day by day this valuable preparation grows in the knowledge of physicians and surgeons, so does it grow in their esteem. It has now testimonials of the highest character from those who have tried it, and is unquestionably one of the best surgical dressings ever offered to the profession. Dr. M. D. Hoge, of Richmond, Va., says that it effectually dissolves and checks the extension of the diphtheritic membrane, and is easily applied without dilution.—*Toledo Medical and Surgical Reporter*.

A New Disease.

Two English physicians—Dr. Hale White and Mr. Golding-Bird—have recently described an affection to which they give the name “Idioglossia.” It appears that the patients hear well, and express themselves in articulation sounds, but such sounds are unlike those of any known language. The patients really have a language entirely of their own, in which there does not seem to be any confusion, *i. e.*, the sounds given forth have an intelligent application, and the same sound always has the same meaning. The discussion before the Royal Medical and Chirurgical Society was varied, some of the members contending that the so-called language of those affected was but a modification of the English tongue, and was to be accounted for by a lack of development in that particular direction.—*Exchange.*

Brain Rest.

Sir James Crichton Brown, in his course of lectures recently delivered upon the subject of “Brain Rest,” said that ordinary sleep grows deeper for the first hour and a half and then steadily diminishes until the slumberer awakens. Dr. Brown pleaded for eight hours for actively working brains, though ascetic notions have led many people to shorten the time, with the result that in certain cases it has been proved that the amount of sleep may be considerably reduced without injury. Literary men were apt to starve the brain in the matter of sleep, but some, nevertheless, had got on pretty well in spite of insomnia. Carlyle and Rossetti furnished instances. Dr. Brown quoted a letter from his friend Dr. Tyndall, who said: “For four weeks I have never had a single second of sleep, and during those nights I walked thousands of times round my room to no purpose. What astonishes me above all” (he adds) “is notwithstanding my nights’ weariness my brain power does not appear to be sensibly impaired. After two or three hours’ sleep I feel my brain as strong and clear as it ever was at any period of my life.” It is, in Sir J.

Crichton Brown's opinion, impossible to doubt that nutrition and repair must have gone on in the brain during periods of sleeplessness. The brain in short must, as he expressed it, "have learnt the trick of the heart and gone to sleep during the beats, or it must have slept in centres which were not active at the same time.—*Exchange*."

Cardinal Points in Bacteriology.

The *Bacteriological World* says: The words germ, bacteria, microbe schizomycetes are used in our present literature almost as synonymous terms, but microbe seems preferable to germ or bacteria, and schizomycetes is a better scientific term than either.

That these are unicellular and assimilate nourishment seemingly by absorption in the media in which they live, but they must transform (alter) the foods found proper, and yet unfit in nature, for their use and appropriation.

Bacteria living on dead matter encounter no living resistance, whilst those feeding on living tissues, or fluids in living tissues, meet the living cells of the body and have to combat them.

The diastases secreted by the various beings, whether highly organized, or unicellular and microscopic have something in common as to their respective objects and their properties of transforming matter.

The role of microbes in the world is complex and necessary, though some are injurious. They act as scavengers, return to the air and water the organizable elements abstracted daily by the vegetables of the globe, and indirectly by animals, and indispensable to life.

The bacteria that invade living organisms which happen to be fit for their nourishment and growth are, in a sense, parasites just as much as the tapeworm is.

Spontaneous generation of living organisms, no matter how little, is a fallacy.

INCREASE IN THE USE OF ALCOHOL IN FRANCE.—From late returns it is found that the consumption of alcohol in France is largely increasing, and this despite the fact of the decrease in population. Can it be shown that there is a relation between these two processes?—*The Journal*.

COMMENCEMENTS.

Louisville College of Dentistry.

The annual commencement exercises of the Louisville College of Dentistry, (Dental Department of the Central University of Kentucky) were held in connection with the exercises of the Medical Department, at Macauley's Theatre, Louisville, Ky., on Wednesday evening, June 17th, 1891.

A very interesting address was delivered by Prof. Francis Peabody on the history of the college and its progress, as well as of the profession generally.

The valedictory on behalf of the class was given by John T. Grant, of California.

The degree of D.D.S. was conferred on the following graduates by Rev. L. H. Blanton, D.D.S., Chancellor of the University :

NAME.

Otto B. Bachman.
H. E. Cottingham.
John C. Giltner.
John T. Grant.
August W. Grubbel, Jr.
Elhanan M. Hight.
James M. Johnston.
Thaddeus J. J. Meder.
James Bashford Moore.
Chas. Walden Potter.
Thomas B. Sanders.
Chas. Filmore Ulmer.
Daniel W. Whipple.

NAME.

William J. Botkin.
George M. Dayton, M.D.
Percy E. DeMille.
James P. Gray.
David S. Henry.
Abraham Howe, Jr.
C. M. MacDonald.
Benjamin T. Messick.
Charles Park Peters.
Wm. Sedwick Rogers.
Charles H. Sharp.
Emmet W. Wagner.
John Haynes White.

University of California—College of Dentistry.

The ninth annual commencement exercises of the College of Dentistry of the University of California were held at Odd Fellow's Hall, San Francisco, California, Thursday November 13th, 1890, at eight o'clock P. M.

The number of matriculates was 63.

The degree of Doctor of Dental Surgery was conferred upon the following graduates by Martin Kellogg, A.M., President pro tem. of the University :

NAME.	RESIDENCE.	NAME.	RESIDENCE.
Frederick H. Allbright.....	California.	Walter Romain Lovegrove.....	California.
Gotthard S. Backman.....	Sweden.	George Martin.....	California.
Frank Drake Burleson.....	California.	Clark Harrison Rawson.....	New York.
Paul Chas. Erhardt.....	California.	Richard McCargar.....	California.
William T. Heider.....	California.	John Matthew Redmond.....	California.
Charles Alexis Herrick.....	California.	David Warren Kulison.....	Nevada.
Saul Roberts Jacobs.....	California.	William Fuller Sharp.....	California.
Charles Ashby Litton.....	California.	Albert John Sylvester.....	California.

Boston Dental College.

The twenty-fourth annual commencement of this department was held in Berkeley Temple, June 17th, 1891, at 7:30 o'clock. An address was delivered by Rev. E. L. Rexford.

The number of matriculates for the year was 97.

The degree of D.D.S. was conferred on the following graduates by the President of the College I. J. Wetherbee, D.D.S.:

NAME.	RESIDENCE.	NAME.	RESIDENCE.
Fred. A. Barbour.....	New Brunswick.	Frederic S. Belyea.....	Massachusetts.
John B. Chandler.....	Massachusetts.	John G. Emerson.....	Massachusetts.
Edmund J. Ferry.....	Massachusetts.	Frank E. Follett.....	Maine.
Walter E. French.....	Massachusetts.	Jennie H. Gallap.....	Rhode Island.
True A. Hoadley.....	Vermont.	Kristian N. E. Noeg.....	Norway.
Frank B. Johnston.....	Massachusetts.	Charles G. Lacaille.....	Massachusetts.
Walter A. Lesure.....	Massachusetts.	Knut J. Luttrupp.....	Massachusetts.
Frederic W. Lyons.....	Massachusetts.	Joseph T. M. Govern.....	Massachusetts.
William E. Nickerson.....	New York.	Ernest P. Peake.....	S. Africa.
Oliver Pease.....	Massachusetts.	Walter N. Pierce.....	New Hampshire.
Marc W. Pray.....	Massachusetts.	John S. Scott.....	P-Q.
Henry K. Shotswell.....	Massachusetts.	George A. Thatcher.....	Massachusetts.
Benjamin H. Thornton.....	Massachusetts.	Sherman E. Vinton.....	Rhode Island.
Asaph J. Walker.....	Maine.	Clarence H. Wall.....	Massachusetts.
Edwin D. Wood.....	New Brunswick.	Austin W. Woodman.....	New Hampshire.
Marion L. Woodward.....	France.		

Harvard University—Dental Department.

The annual commencement of the Dental Department of the Harvard University was held in connection with the commencements of the other departments of that institution in Sanders Theatre on Wednesday, June 24th, 1891.

The degree of D.D.S. was conferred upon the following graduates by the President of the University Chas. W. Elliot, L.L.D.:

NAME.	RESIDENCE.	NAME.	RESIDENCE.
Paul Boitel.....	Switzerland.	Clarence Moore Noble.....	Canada.
Georges Antoine Brouillet.....	France.	Hugh Owen.....	New Zealand.
Adin Albert Goldsmith (D.D.S. University of Pa).....	New Hampshire.	Joseph Totten Paul.....	Boston.
Amos Irving Hadley.....	New Bedford.	George Barnum Perry.....	Illinois.
George Meads Holden.....	Lowell.	William Tuller Sharp, D.D.S. (University of California).....	California.
Shimpei Nobustune Isawa.....	Japan.	Fred Homer Woodcock.....	Worcester.
George Martin (D.D.S. University of California).....	California.	Alex. Humbolt Fisher.....	Boston.

EDITORIAL.

Dental Colleges—Commencements.

All the dental colleges of this country, numbering about thirty-seven, have concluded their work for the term of 1890 and 1891.

A list of the graduates of nearly all these, for the term just closed, will be found in the DENTAL REGISTER of the months of May, July and August, to which ready reference may be made by any desiring to do so. From thirty of these the degree of Doctor of Dental Surgery was conferred on 1,164 persons; this making an average of thirty-eight and a fraction for each college; this approximately is about one-twelfth of the number of dentists practicing in this country. This is a much larger number than has been graduated in any former year. A little consideration of this question will, we think, quiet the fears so often expressed, "That the dental profession is soon to be overcrowded with practitioners." We think it not wide of the mark to say that every year one in every fifteen of the practitioners will leave its ranks by death, age, incapacity, or for the prosecution of other business; doubtless, at least one in twenty of the recent graduates from our colleges, will for want of adaptation or some other cause, never enter fully into the practice. If these estimates are proximately true, the additions made by the colleges will not more than keep up the number to its present point. Owing to the legal regulations, and the change in public sentiment, there are very few additions to the profession except through the colleges. It is but a few years since the large proportion of those taking up the practice of dentistry did so in some other way than through the colleges; that is now practically stopped, and it is not difficult to estimate with some degree of accurateness the number entering the profession annually. Whether the number of graduates is to be kept up to the present standard, or increased for the next few years, is a

question that each one will decide for himself. The probabilities are, however, that for the next two year, and probably the year following, as large, or a larger number will be graduated from the colleges than this year: after the next two years, however, and for several years thereafter the probability is that there will not be any increase; the number will probably be less for several years after that time, at least, three or four years. The increase in numbers in the profession has, in years past, not more than kept up with the increase of population.

While it may seem that in some localities there are more dentists really than are needed, the fact is that nowhere is there an excess of the better class of operators, and in many places there are none of the better class, and there are many communities through this country where there is no dentist of any kind. The demand everywhere is for better service. The people are becoming rapidly educated on this question, and it is very questionable whether the profession is keeping up with that demand. This education of the people will continue, the demand for better preparation will grow, and because of this condition many of those who have been practicing in a very defective way find themselves crowded out and forced to seek some other occupation.

It is to be hoped that this process of elimination and progress will continue with increased ratio from this time henceforth.

Biographical.

WILLIAM H. ATKINSON, M.D., D.D.S.

The subject of this sketch was born January 23rd, 1815, at Newtown, Bucks County, Pennsylvania. His parents were of Quaker stock. His father, during the latter part of his life at least, was a minister in the Methodist Church. His mother, from a natural fitness and through some special preparation, engaged to some extent in medical practice, more particularly in her immediate neighborhood. Her success was said to have been

unusually good. Their home, after some years, was changed from Bucks Co. to Mercer Co., Pennsylvania, which was then a new and sparsely settled part of the country.

The attainments and successful practice of his mother inclined his attention to the science and practice of medicine, though in his boyhood he was apprenticed to a tailor; this, and working upon the farm constituted his labor of early life. During this time he was studying and acquiring a good knowledge of nature in its various phases and aspects, and doubtless here was laid the foundation of that thorough and extensive knowledge which he possessed, and ever after remained with him. In early life he showed unusual traits in the study and investigation of basal principles. About the time he came to full manhood he went to Meadville, Penn., and there began a thorough and systematic course of the study of medicine with Dr. Wm. Woodruff. After attaining a good degree of medical knowledge he practiced in connection with his preceptor. Things went on thus for a time, after which he sought a more intimate connection with the family of his preceptor, which resulted in his marriage to Martha C. Woodruff, May 17th, 1840.

He graduated in medicine at Willoughby University, Willoughby, Ohio, in 1847, at the age of thirty-two. For that occasion he wrote a thesis on the subject of "sleep," a paper which attracted considerable attention at the time. He practiced at Meadville in partnership with his father-in-law for some time after his graduation and gave special attention to surgery and attained considerable reputation in this line of practice. During the time of this practice he made the acquaintance of an itinerant dentist, and became familiar with the practice of this department. It especially attracted his attention, and he thus early, realized the fact that dental practice ought to be much more than a mere trade. His appreciation of it grew as time passed on and his interest in it increased until it largely absorbed his thoughts. He by degrees, and almost imperceptibly, entered the practice of dentistry, and he manifested an effort to make it an ennobling profession; relinquishing the practice of medicine gradually as he took up the practice of dentistry.

About this time he removed to Norwalk, Huron county, Ohio. He there practiced successfully as a surgeon, physician and dentist. He remained in Norwalk two or three years. In 1853 he removed to Cleveland, Ohio, where he formed a partnership with Dr. F. S. Slosson, then a leading practitioner of dentistry in Cleveland. He here manifested such energy and aggressive industry, in his new occupation as to soon become known as one of the most thorough and progressive members of the profession.

While in practice with Dr. Slosson he received, as a student, Dr. Charles R. Butler—his first student. After thoroughly training him as a pupil he formed a partnership with him in practice. Dr. Atkinson received the degree of Doctor of Dental Surgery in the Ohio College of Dental Surgery in Cincinnati in 1859. He became greatly interested in the growth and progress of his newly chosen profession, and it may be said that it was in a condition to greatly need just such support as he was able, and did give it. He was enthusiastic in the formation of dental and scientific societies, throwing his whole energy, whenever opportunity offered, into such enterprises. He was also greatly interested in the subject of dental education, ever ready to give wise counsel and aid, whenever it was in his power and wherever needed.

It is said, and we think with truth, that he inaugurated operative clinics before dental societies; his first effort in this direction being before the Indiana State Dental Society in 1859. He there introduced and first drew the attention of the dental profession to the use of the mallet in filling teeth. By his enthusiasm he awakened interest and stimulated thought wherever he went. He was a student in all natural sciences; he was greatly interested in microscopy, and was instrumental in extending its use in various lines of investigation in dental science.

His professional life was a gratifying success; success in its highest aspect.

In 1861 he removed to the City of New York, a larger field there being opened for the exercise for his great ability. For one year after his removal to that city he had charge of the large

dental depot of the S. S. White Co. That being less congenial to his tastes he returned to the practice of his profession at the end of the time designated, where he established a most enviable position, not only as a practitioner of dentistry, but as one who for years exercised an almost unparalleled influence in the profession, and this too in the way of aiding and making better professionally those who came within the sphere of his influence; this he did, not only at his home and at his office, but he visited all parts of the country laboring to organize, establish and build up his chosen profession.

He was the first to promulgate many new points in practice; he never hesitated to put forth anything that he thought would be of service to others. He communicated freely all he had; he did more, perhaps, to elevate the profession by introducing a higher appreciation for thorough work than anyone else in this country; for example, when he removed to Cleveland he found there in the hands of even the best, that professional fees were at the tinker's standard, and the quality of the operations corresponded. He promptly more than doubled the average fees that were charged and made his operations to correspond. He received sharp criticism, even rebuke for this, but it did not turn him from his course, but it ultimately served the purpose of bringing others up to a far better and higher standard of both work and fees.

He possessed a great faculty for communicating knowledge to others, as was shown in the fact, that for years he had private classes that came to his office at set times, and sat under his instruction, and such was his power in this work that he was able to communicate not only largely of his own knowledge and ability, but of his enthusiasm as well, to all those who were his pupils, as many could bear witness to this day.

Dr. Atkinson gave much effort and influence for the founding and organization of dental societies in various parts of the country. He was one of the founders of the American Dental Association of which he continued an active member till his death; he was its first president after its organization. He was also largely instrumental in the organization of the First District Dental

Society of New York, and also of the Brooklyn Dental Society. He was an active member in many dental societies in the country and was an honorary member in every other one of any considerable importance.

In all his association work everywhere he was the means of enkindling an enthusiasm that was unequalled by that of any other member of the profession. His work, his speaking, and his writing always induced men to earnest thought.

He was also instrumental in the organization of the New York College of Dentistry, in which for a time he was a teacher. Everything he did and every resource he possessed was made subservient to his ambition for the advancement of dental science and art. Some of the best men in the dental profession owe much to Dr. Atkinson for what they are to-day. He ever had a watchful care and interest in all that pertained to the progress and up-building of his chosen profession; always jealous for its interests and strongly antagonistic to everything derogatory to its welfare.

Within three years before his death he suffered grievous affliction; his wife, his eldest and youngest sons and three grandchildren passed from this life. These great afflictions seemed almost to crush him, and no doubt hastened the termination of his earthly career. He was a person of great sympathy and of an exceedingly sensitive nature, though of a strong will, which enabled him oftentimes to hide feeling that was raging like a storm within.

He will long be missed in the profession; hundreds of eyes will be turned to his vacant seat in the meetings and convocations where he has been in the past almost a constant attendant and participator.

Let all profit by the noble example which he in so many ways set before his fellow men.

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COMMUNICATIONS.

An Ideal College Curriculum.

BY MILTON F. AULT, M. D., D. D. S.

INDIANAPOLIS, JUNE 30, 1891.

Mr. President and Members of the Indiana State Dental Association :

The assembling of members of a profession in local, State or national association ought to indicate a laudable purpose. He who has laid aside his business, feeling that dentistry should have an individuality; that we need more power to follow our convictions; that the empiric and mountebank should be subdued and honor and ability promoted, and that the memory of fraternal intercourse is needed to cheer in seasons of darkness, is the man whose purpose in coming here is that of loyalty and devotion. What a beautiful thing it is to have a proper conception of the duties incident to this life, and then have the wisdom and fearlessness to be loyal. How much the terms devotion, fidelity and love are abused by misapplication. He who has seen his convictions of life outraged, who has felt the impulse which springs from home association, who has experienced the dread and anxiety preparatory to battle, and who has, for the sake of manly independence and pure government, dedicated to his country all he holds sacred, appreciates the power and sublimity of loyalty. He who has striven through poverty and persecution, guided by the right as he understands it; who has been gentle, respectful and unassuming, feeling an intense disgust for bombast, glitter and deception; who has sustained the moral, intellectual and religious man because God expects it, and who has given value received, because conscience exacts it, is the man who feels the

power and grandure of loyalty to his employment. While our mission here is to discuss the merits of the many modes practiced, and to consider the feasibility of methods which exist only as theories, we must not overlook the far-reaching subject of the true training of the young men and women in our offices and colleges, who are working for membership in the dental profession. The man who is accustomed to doing a thing in a certain way listens to theory impatiently, but all the good which we enjoy to-day once had the theoretical form. Theory contains revolution—it upsets old practices and drives men from the intrenchments which their cunning and selfishness have devised toward the ideal in civilized life.

When a person enters a community and it becomes known that he professes the knowledge and delicacy of manipulation that belongs to dentistry, the people expect him to extract teeth with superior skill; that after an operation there shall be a reasonable service; that after inserting an artificial denture, that which was lost in expression, shall be restored. Anything short of this is not dentistry, and the college that fails to equip its students in these particulars fails to meet a very just and reasonable expectation from the people.

When one proposes to practice dentistry, it is not only the better dentists in that locality, but well-qualified, sensible dentists everywhere that expect him to deport himself in a professional manner. He is to live above those allurements which, in the end shatter health, render him worse than a beggar, and make his profession infamous in the estimation of refined people. He is not to startle the populace by announcing a revolution in dentistry—wonderful performances—as painless extraction, fifty-cent fillings, three-dollar teeth, work guaranteed, and vitalized air. The profession desires him to cultivate that dexterity and skill that will make his work the only advertisement needed—and learn that milk ticket, grocery sack and scioptic notices are the schemes employed by the ignoramus to defraud the penurious and the unsuspecting poor.

The profession expects him to be contented with the plain and unassuming word dentist, and if he administers to the wants of

his patients with the intelligence and sympathy that he should possess, he will find in that word an all-sufficiency. Anything short of this is not decorous, and the college which fails to inform its students in the details of deportment fails to meet a very just and reasonable expectation from the profession.

When the duties incident to dental practice are chosen as a life-work, the man desires to close his life with a considerable degree of financial success, besides throughout his career the divine and human governments under which he lives demand a part of his time and consideration. To succeed financially, is the cardinal aim of most men, and how to achieve this without too much sacrifice on the part of the physical, mental and religious man is a very important question. It is very evident to one of experience that with a low scale of prices the practitioner suffers in every particular. Those who are satisfied with only the best work that art can give, know how exacting our operations are, and with what care and tension of nerve they must be executed, so the attempt to be noted as a conscientious and at the same time cheap operator is sure to end in physical and financial ruin. With the knowledge that we have of superior dental service, we can not work from sunrise to sunset unless it is done at the expense of constitution and mind. Continuous effort, although legitimate in itself, and may seem necessary, means either a short life, misery in old age, an uncultivated mind and hopeless future, because in our struggle to satisfy the money aim of life we take from other faculties that which has been ascribed to them through divine order. This may seem like a wide departure from the subject, but when we consider our obligations as men and the purpose of the creator, we can not escape the conclusion that the religious and political sides of our natures are just as pertinent themes for a dental society as gold crowns and painless operations. I suppose there are but few men who are fully conscious of the different phases of a dentist's life but what have often closed office and trudged home, feeling too tired for exercise, and no disposition for social or intellectual improvement. These hampering and cramping, selfish and forbidding tendencies in our lives it is the business of the college to guard against.

Now, when we consider what the people and the profession expect, what the human and divine governments expect, and what we anticipate for ourselves, there is sufficient ground for demanding a more generous training from those who pose as preceptors and professors, and the student who tries to assume the responsibilities of his own office without a thorough preparation, will soon feel the weight of disappointment, misery and neglect. Any man or woman that possesses the natural ability to become a dentist, has sense enough to desire a reputation for superior work, and honest enough to give value received, so when he faces the stern barriers of actual business and finds that the babbling and many irrelevant things which have been forced upon him as essentials in instruction, and which have cost him many hard-earned dollars, does not enable him to meet the requirements which we have cited, the college which sent him adrift will surely be the object of his invective and the recipient of many harsh but merited accusations. The principle in educational economy, "that whatever is to be learned ought to be learned by doing it," has a particular import in dental college instruction, and no student, no difference what his rank or relations may be, should be graduated until he is able to perform the operations that are incident to dental experience, and conduct his practice in a Christian and ethical manner. Being the son of a dentist should entitle him to but little more consideration than is accorded others, and the M. D. degree is often counted for more than it is worth in determining the pupil's fitness for the special work of dentistry. While I am especially desirous of ornamenting, and fortifying our profession with the intelligence and refinement that pertain to other degrees, the possession of that mental and manual training which is embraced in the degree D. D. S., is the supreme topic for faculties and examiners. When the characteristics of the ideal dentist are considered, we naturally ask what kind of material should be admitted to the college? What should be taught? In what order should it be presented? What method should be employed, and what should be the qualification of him who presumes to teach?

An ideal course of instruction can be attained by assembling those elements which are so free of defect as to answer the divine

and human, professional and personal expectations, and such a curriculum followed by a well-balanced student, as presented by a faculty keenly alive to its duty, could not fail to produce the type of character which is so essential in sustaining the respect and influence and power of our profession. Let us now briefly consider the conditions upon which a pupil may be admitted into a dental school. While it is clear that a school of this kind is established for a specific purpose, the conditions governing the admission of students differ but little from those adopted by other schools. Our terms have no respect to locality, age or sex—a condition with which I can readily comply. We claim that a certain degree of general scholarship shall be the principal element of eligibility.

To this condition I heartily agree, but I regret the loose manner in which it is often applied. It may seem to the crude notions of the applicant that the description of the Amazon, the boundary of Massachusetts, the analysis of a sentence, or the spelling and pronunciation of a word has a very obscure relation to preparing a cavity or making a crown, but the teacher who has instructed in the details of this specialty knows full well of the attention, interest, perseverance and aptness of the mind that has the discipline of a general education, and the awkwardness and embarrassment of the pupil without such training. True, a learner with patience and natural ability may acquire the power of building beautiful things in gold without knowing about the physical features of his own country or that he lives in 40° N. latitude, but the mission of the dental school is to replenish our depleted ranks with men—men whose ideals are sufficiently elevated to make them desire to know about the partitioning of Africa, the great political struggles in the world, and the facts of sacred history. This it is that rests and stimulates when we are weary from the exactions of our special employment.

The conditions of admission, so far as I have observed, have no reference to those characteristics of the student which are so essential in making a full grown, manly, professional man. These personal traits may be considered in the order of health, natural ability, love of learning, an elevated ideal, self-reliance, persever-

ance, patience and humility. These and other qualities are usually mentioned in describing a desirable student in general school work, so I have endeavored to select those terms which I think would have a particular meaning in describing a desirable applicant for admission into this special work. Not long ago a young man came to my office. He said that he wished to study dentistry, and that he would like to stay with me till the beginning of the coming session. He told me what kind of a life he had been living; *i. e.*, as to his occupation, the extent of his general education, etc. But there was one thing he did not mention. I saw in his large glossy eyes, sallow complexion and general carriage, something which caused me to discourage his pursuit. I was very well acquainted with his family history, was well pleased with his explanation, and would have felt proud to have his name on the roll of our college, but I did not feel justified in encouraging him to begin a work which I was certain he was physically unable to do, and which would have hurried him to his grave, a victim of tuberculosis. In this instance I think I did what the college should do with similar cases. Of course it would be difficult for the school authorities to determine with reference to the applicant's character without the aid of a preceptor, and in securing the desired information it would be well for those knowing most about the pupil to answer the following:

Do you believe the young man whom you recommend possesses the natural ability to become a desirable member of the dental profession?

From your observation, does he love learning to the extent that we may expect an earnest effort to obtain knowledge?

Is it your opinion that his ideal is sufficiently elevated to make him appreciate the purpose of his undertaking, and desire the dignity of a cultured character?

Is it his custom to think for himself?

Have you noticed in him the concentration and enthusiasm that enables one to surmount great difficulties?

And does he possess the patience and humility, and realize his own littleness sufficiently to be teachable?

Now, I have tried to set forth briefly the characteristics of the

embryo dentist, and to indicate the quality of material that should be placed under the care of the faculty. These conditions may be said to exact too much, but I believe that for a special work we should demand special material, and by so doing the college can offer no excuse for disappointing the profession or the public.

The student that we need is now introduced, and the next important question is, What shall he be taught?

We can answer this best by discussing the nature of dentistry and the expectations which the school is to satisfy. Dentistry is of a triple nature. It is a specialty in medicine, a specialty in art, and a specialty in mechanics. Our students are not to become general practitioners. They are not to become sculptors, neither are they to be mechanics, but they are to treat and operate upon certain organs of the human body which consist of living tissue. Their *materia medica* embraces probably sixty medicinal agents, and their instruments are truly surgical. They are to meet æsthetic requirements by means of the mind and imagination, and in this respect they engage in the refined arts.

Their manual and bodily efforts are dictated by a disciplined mind, and in this their work is largely mechanical. To know the anatomy, physiology, histology and chemistry of the organs upon which they operate; to know the relation of these organs to the rest of the organism; to understand the properties of the material they use; to know what to say and what to do, and how to do, are among the important things for their study. While I am in favor of pupils studying subjects that are remotely related to their work, I am opposed to worrying about the foramina, surfaces and ossification of the temporal bone, if it must be done at the expense of the peridental membrane or development of the teeth. I am not in favor of memorizing the origin, different preparations, and antagonists of digitalis, when it is necessary for the time to be given to anæsthetics. They should not study iron until they are thorough in the manipulation of gold. In short, I believe the mission of the dental college is to make dentists, and that there is no legitimate excuse for the school which sends a pupil forth feeling that he is not competent for the work. Essential knowledge first, and ornamental knowledge afterward,

should be the controlling thought. This brings us to the modes of study.

The progress of the student will be determined by the place he begins, the number of things he undertakes in a given time, the order he observes, the way he understands, and the permanency of what enters his mind.

The object of the learner is not to find out something for himself, but rather to acquaint himself with what is already known ; so I believe that the place for him to begin is on the first page, the teacher taking but little for granted. The principal difficulty with students generally is that they undertake too much, but it is to be hoped that the three-year course will obviate this difficulty.

Students generally appreciate a logical order in study, and this is proof that their progress will be more marked if it is observed in arranging work. To talk to the pupil concerning Kingsley's case of irregularities would awaken little interest, but to present : 1st, The proper period for regulating ; 2d, Impressions and models ; 3d, Mechanical forces, etc., could not fail to attract attention. Lastly, if the pupil wishes to understand, he must give proper heed to the language used as well as the thought, and must not be satisfied until he is master of the situation.

Having the pupil with the requisite disposition, having the proper selection of subjects and the learner with the true conception as to the mode of study, is very essential, but can not attain the end for which the school was created, unless the management fully appreciate the meaning of method. A person about to undertake the study of dentistry in looking over the various college announcements would conclude that the true value of a school depends upon age, well-arranged buildings, immensity of museum, completeness of apparatus, number of instructors and size of clinic, but a person after short contact with an institution awakes to the fact that the true value of a school depends upon the method of its instruction. Knowledge must be transferred in a scientific manner if we expect the development of the learner to be normal. There are four recognized modes of imparting

knowledge—by lecture, by text-book, by dialogue, by catechization. In the first, the teacher speaks and the pupil listens; in the second, the pupil is mostly in contact with the book; in the third, there is a mutual relation existing, and the fourth leads the pupil from the known to the unknown by a series of questions. Now, the lecture mode is the method generally followed in medical and dental colleges, and a lecture as we usually hear and see it, consists of the entrance of the professor, a nod of recognition, a formal discourse, either oral or written, and then exit of the professor. The student is amazed at the dignity and display of learning, makes a few scattering notes, the hour is gone, and conscious of how little actual knowledge he has gained goes to his room discouraged and discontented. What is the trouble? 1st, The pupil has not come to the school with the preparation that is necessary to make the lecture method a success, because this mode supposes that the class has made itself fully acquainted with the subject as treated in the book, and that the instructor from his experience is able to introduce new thought. 2d, The instructor failed to recognize that the rapid presentation of fact after fact was not consistent with the slow development of the mind; he failed to see the importance of halting to make a single suggestion or illustration.

When a pupil goes to the public school he takes his arithmetic, grammar and geography. The teacher says you may study the examples, rules and problems on page 103; you may study the analysis of the sentences on page 45, and study the physical features of North America. The pupil is not supposed to be acquainted with the thought contained in the lessons, but he is given a chance to do what he can until the time of recitation, when the teacher tests his knowledge, corrects his errors, introduces new facts, discusses principles and makes what other interpretation he deems necessary. Now, since most of the pupils attending a dental college are admitted without any test as to their specific ability, I believe the text-book method, or a judicious combination of the text-book and lecture methods, come as near the ideal as any mode at command. So the student should enter the work with his dental anatomy, dental physi-

ology, dental histology, dental *materia medica*, dental chemistry, his works on irregularities, operative and mechanical dentistry, and that the teacher should say to the class in anatomy, You may study the number and arrangement of the teeth, pages, 1 and 2; To the class in histology, You may study the structure of enamel and dentine; To the class in operative dentistry, You may study the kind of decay and location of cavities, pages 3 and 4. The time of your recitation will be to-morrow from 9 to 10; then I will test and prove your knowledge—supplement the textbook, and do what I can by illustration and explication to enable you to make the subject fully your own. In testing your understanding of the lesson I will ask you a number of questions which shall be clear. They shall be so easy that you will not get discouraged, and so hard that you will have no time for idleness. In proving your understanding of the lesson I shall expect you to answer the questions in an explicit and logical manner. You are not to wander from the point presented in the question, and I want the answer to indicate not a mere committing to memory, but a comprehension—an assimilation of the thought of the text.

Let us consider now, the clinical department of the college. Here, in my judgment, is the most important work of all. In the infirmary the learner is brought in contact with the best of books. Here he sees the text that breathes, lives, feels pain, looks suspiciously or confidently, follows the hand as it selects the instrument, begs for caution, inspects the cleanliness of napkins, finger nails and shirt front, passes judgment, and returns her verdict to every one she meets. Here the man without experience stands in doubt. He approaches the patient for the first time, and realizes for the first time in his life how weak he is. He has studied pictures of chairs in all positions, but he can not determine how high, or at what angle he needs this chair. He moves his nervous hand to the mouth to make a survey; he has seen pictures of decay and cavities, and irregularities, but he has never before seen such cavities and malpositions, so he continues, and at the end of three hours, weary and haggard, he finds to his chagrin that the filling rocks. He is just beginning to appreciate what dentistry means, and to under-

stand what the old dentists say when they enjoin patience and control of temper. We hear many propositions in our daily rounds. Some of them are like these: No man can appreciate a doctrine until he applies it to his own life. You may recognize a person by his external features, but you can not say that you know him unless there has been contact with his inner life or spirit. Now, the pupil has heard theory, doctrine and dogma, but here in this manual work he is applying theory to his own life. He is undertaking something that leaves a more pronounced mark across his soul than any that has hitherto been made. He is engaging in something that tests his nerve, his blood, his sympathy, his judgment and his integrity. In my humble opinion the duties of the infirmary and laboratory are of such gigantic proportions that no boy, or senior student is able, from the standpoint of experience, scholarship, or teacher's qualification to meet the demands that are naturally imposed.

If a person has a friend he wishes to promote, he had better nominate him for any post connected with the college rather than name him for demonstrator, when he is aware that he is a novice and consequently has nothing to exhibit. Colleges talk and print much about their clinical advantages. One reports one thousand clinics during its last session. One has thirty chairs, and another puts the juniors to work immediately, so that no senior has any advantage. Let us see whether a school can treat a thousand patients with equity, or has any scientific plea for putting juniors to work immediately. This department must be founded on the following principles: Like didactics in general, its true value is in method and not in bombast. The patient should have justice; *i. e.*, the best filling, the best crown, the best plate is due her—not the best crown or plate that a junior or senior can make, but the best that any body can make.

The pupil should have justice; *i. e.*, he should derive all the benefit possible from the clinic, and he can not have all possible benefit until the patient has justice. Deduction: The inexperienced pupil alone can not give the patient justice, hence the necessity of the constant attention of the ripest experience. The profession should have justice; this is not possible unless the stu-

dent and clinic both have justice. The work should be systematic, remembering that the mind develops slowly, and the hand in a corresponding degree. The mind dictates the movements of the hand. A certain amount of mental discipline is necessary before the mind can intelligently dictate, hence the absurdity of allowing beginners to operate until they have received or conceived a design or theory of operation.

The student is not an apprentice—a hewer of wood and drawer of water, but he is a man away seeking knowledge, is paying for his instruction, and is therefore an important factor in the school, and on his needs the requirements of the school rest.

This, then, is my scheme as to this mental-manual training department—this work that brings the hands, the back, the feet, the eyes, the brain, and every part of the pupil into action.

I would have the demonstrator address the class in this manner: Gentlemen, in the other work of the school you have been studying various subjects, and your reason for that is that there is an educational value in such study. You feel that there is a pleasurable value, a practicable value and a disciplinary value. In that work you have been expressing yourselves by oral and written language. You, no doubt, recognize that before you can experience the highest pleasure, possess the greatest degree of practical value, or feel conscious of the strongest mental attainment, that you must express yourselves in a perfected object. You are striving to give a valid illustration of your worth, but you can never do it by writing and talking. You must construct; you must build something. You are probably aware that there are two systems of manual training in this country—one imported from Russia and the other from Sweden. The Swedish system holds that the learner should make useful articles from the first—these articles to have at once some place in the social or domestic life of the pupil.

He would make boot-jacks, saw-bucks, canes, bread-pins and needle-boxes. The Russian system insists that the learner shall not proceed immediately to making articles of utility, but that all work, simple and complicated, shall consist of two steps; First, a drawing; second, construction of the object. The draw-

ing is not a copy of something, but represents principle and processes of construction, and after the completion of the drawing, the construction of the object is accomplished by fulfilling the conditions of the drawing. Now, it is admitted that in the Swedish system there is the advantage of greater immediate success, but the Russian system is of wider range and of larger educational value. We will now proceed with our work, using as much of these systems as the nature of our work will allow. I see you have your clinic registers and pencils. The injunction, "observe, reflect, record," is one that you will now appreciate. Here is our patient; the lady's name is Miss Jay; she resides at 24 Essex street. How many observations do you think we can make in this case? Follow carefully: First, I must calm her fears and gain her confidence. If she is nervous, I am liable to be nervous. If she suffers, I suffer. If I get excited she will be alarmed. Self control is the essential in securing confidence. I must deal gently; I must be steady and deliberate. The second observation will be made before isolating. We find a cavity on the mesial surface of the right upper central; there is no malposition and we can gain sufficient access without separating; the class may come and examine this tooth. We will now indicate in drawing the theory to be followed in preparing the cavity. Please remember that this drawing must set forth conditions to be followed in the use of the instrument. It must show beveled margin, undercut, general or special retention, and degree of excavation. After this is finished, I will call on some one to prepare the cavity according to the principles indicated. I see your drawings are good. Mr. Jones may now come forward and we will get the tooth ready to fill. From this work I would think Mr. Jones appreciates what he placed on paper. Let each member of the class make a careful inspection of this cavity. Notice that there is very little undercut; that the walls are almost at right angles with the bottom of the cavity; every thing is favorable for the use of soft foil.

Before we begin this, we need another drawing—one which sets forth the theory of the filling process. This drawing must show the length of cylinder, its size, its position in the cavity,

and means of condensation. After this, some one, with my assistance, will be called to carry out the process represented in the drawing. I have noticed the progress of your work, and feel very much encouraged, but I noticed one that has a wrong idea about the arrangement of the cylinders. He has indicated in his drawing that the small condensed cylinder should be used to start with. Notice the copy which I have on the board; we have indicated the use of a large cylinder, longer than the cavity is deep, to begin with, using smaller and more compact ones as we advance. Mr. Thomas may now come forward and I will help him introduce this filling. Pupils, you have listened attentively to the explanations; you have followed the work in drawing; you have witnessed the preparation and filling of this cavity. It is supposed that you are acquainted with this kind of work; your next duty will be to operate on a similar case. In that work carry out the conditions of your drawing, and heed the instruction which has been given. The class is excused.

The association will note that there is so much to be said and done in conducting a clinic, that all I can do is to mention the principal topics and the order in which they should be discussed. My point is that demonstration is a very difficult work, and therefore requires maturity, scholarship, care, system and constant attention. A teacher's preparation must be determined by the nature of the subjects to be taught and the end to be accomplished by the recipient of the instruction. The person who is professionally able to teach, realizes that true thought in any subject is God's thought, and his task is to make the pupil's thought the same. The professional teacher sees in each of his students a struggle to attain a higher standard. He may see a pupil pursuing something that is not consistent with a perfect ideal, but the inference is that the pupil is mistaken in his idea of manliness, and that his misconception must be corrected by the educational process. The teacher sees an immature judgment, inaccurate observation, uncertain memory, perverted imagination, dishonest intentions and feeble will, and realizes that his mission is to bring order out of chaos.

In this world there are many standards. To excel in physical

prowess to conquer nations, to build mansions, to be intellectual, to sway the royal scepter, to extend Christian missions, to comfort the unfortunate, to be like Christ, are some of the prominent standards which control men. What is our standard?

A professional individuality—that purpose, that concentration, that energy that will make us stand in bold relief. That skill that secures and holds confidence; that intelligence which endows with power, wins respect and makes us able to defend; that faith which makes a Christian and that fidelity which makes a patriot. This is the standard of the dental profession, and the embodiment of an ideal college curriculum.

Chloralamid in Surgery.

BY EMORY LANPHEAR, M.A., M.D.

Professor of Orthopædic Surgery in the University Medical College.

Extract from a clinical lecture communicated for Notes on New Remedies by the author.

Frequently after an operation of magnitude it is necessary to give the patient something to quiet the nervous system and to produce sleep. It is not always pain which causes restlessness and sleeplessness after the operation—in the majority of cases I am sure that the impression upon the nervous system, and particularly upon the mind, is what leads to the insomnia; for under our antiseptic methods, and especially where the wound has been covered with iodoform—a drug having decided anæsthetic properties—there is but a trifling amount of pain, often none, even after the most severe operative procedures. But as night draws near there is a growing restlessness, and at the hour when sleep should come the patient is anxious, nervous and wakeful. What can be done? The almost universal rule among surgeons is to order a hypodermatic injection of morphine, but I believe this is unjustifiable unless there be some indication for the anodyne effect of the opiate. This is markedly true in abdominal surgery, but in any cases the morphine is objection-

able because it is apt to produce vomiting, is certain to seriously interfere with the process of digestion, is sure to induce constipation, and nearly always to give rise to headache, malaise, etc. Chloral has been suggested as a proper hypnotic; but chloral depresses the heart to a dangerous degree, and therefore can not be used in these cases. Bromides, with hyoscyamus, will sometimes answer the purpose admirably, but most stomachs rebel against this combination; so that it is hardly safe to try it. What then can we use? If a drug can be found which will be free from all these objectionable features it unquestionably will fill an important place in our materia medica.

Such a one, it seems, has been discovered in chloralamid. This comparatively new medical agent is prepared by combination of two parts of chloral hydrate with one of formamide; it is found in commerce as a colorless, crystalline substance, nearly tasteless, soluble in about twenty parts of water and two of alcohol. It will keep indefinitely in solution without decomposition, but can not be dissolved in hot solutions because of chemical changes. It acts very much like chloral and sulphonal, but does not depress the heart like the former, and is much superior to the latter in that it is soluble, exerts no bad influence upon digestion, possesses no diuretic action, never causes pruritis, vertigo, diarrhoea, or other bad symptoms which sometimes follow the administration of sulphonal—in fact, experience is demonstrating the accuracy of Riehm's observation: from chloralamid no ill effects in the circulation or in the feelings of patients are to be noted; and, besides, the cost is much less than that of sulphonal. T. Lauder Brunton, in a recent report on the Relative Utility of Different Hypnotics, highly recommends it and states that with reference to certainty of action and the question of tolerance chloralamid surpasses.

It exerts its influence upon both the brain and spinal cord, producing sleep and reducing the motor excitement; it may be regarded as a pure hypnotic without anodyne properties, though some late reports would indicate that it has to some degree the power for partial abolition of pain. It is, then, the ideal sedative, giving prompt and satisfactory action, reliable results and absolute freedom from evil side, or after effect.

Its dose is from fifteen to sixty grains. The proper method of exhibition is to give fifteen to thirty grains (according to the condition of the subject), repeating the dose in an hour if the first has not produced sleep; usually from ten to thirty grains give five to eight hours' refreshing slumber. The best method of giving it is to dissolve the required amount in about a teaspoonful of whisky or brandy, or in a small glass of wine if the patient prefer. It may also be given in any thing containing alcohol in considerable quantities, as tincture cardamom compound, tincture of hyoscyamus, etc. If for any reason it can not be given in this manner it may be taken in powder form, and washed down with cold water or cold tea. The direction of W. Hale White, of London, is a good one, viz.; tell the patient to dissolve the powder in brandy, add water to his liking, and drink it shortly before going to bed; this combination with spirits is particularly good in our surgical cases where whisky is usually indicated, at least in most major operations. If in any case it be better to have the medicine in liquid form, this combination may be prescribed:

R. Chloralamidj drachms.

Spts. frumentij fluid-ounce.

Misce bene ut ft. solut. at adde;

Syrupum rubi idæij fluid-ounce.

Misce. Sig. Dose one tablespoonful, to be repeated in one hour if sleep is not produced. This makes a decidedly pleasant mixture of slightly acid taste and fruity aroma and flavor.

BIOLOGICAL ACTION OF IRON AND MANGANESE.—Dr. Fausto Faggioli has published in a recent issue of *La Riforma Medica*, some notes of a research upon the physiological behavior of iron which he has carried out, with Professor Pellacani's assistance, in the Bologna laboratory of Forensic Medicine. From these it would appear that iron enjoys the property of setting up mitosis, or nuclear change and cellular increase, especially in cultures of unicellular organisms such as protococci. Under such circumstances manganese will act in the same way, but Dr. Faggioli was unable to find that any other metal could do so.

SOCIETY PROCEEDINGS.

The Thirty-First Annual Meeting of the American Dental Association.

SARATOGA SPRINGS, N. Y., AUGUST 4, 1891.

Reported by N. S. Hoff, D.D.S., Ann Arbor, Michigan.

The meeting was called to order at 10:15 A. M. in the City Hall council room, by President A. W. Harlan. All the officers except E. T. Darby and S. G. Perry, of the executive committee, were present and in their places.

The usual preliminary reading of minutes, roll call, etc., were duly disposed of, also the secretary, treasurer and executive committee reports.

At the session last year a committee was appointed to confer with the authorities at Washington and urge the appointment of dental surgeons to the army and navy. This committee reported a conference with the surgeon general and read a communication from him to the effect, that owing to the peaceful times and almost complete abolishment of frontier life, there was no need of an army dental surgeon as the troops were located in towns and cities where such services could be secured readily, and that the small numbers of the troops that were out of the reach of such services were continually on the march, so it would be impracticable to appoint a dental surgeon for them. Further, the expense to the army, and opportunity for extravagance and abuse of the privilege, would more than counterbalance any desirable end that might be sought by such appointments. The committee therefore desired to submit an unfavorable report, which was accepted.

The committee on dental legislation made a report and urged as a solution of the differences between college faculties and State examining boards, that a committee should be appointed from each State board where a college was located, to assist at

the examination of candidates for graduation in connection with the college faculty, and such examination and indorsement was to be accepted as final in any State. The report was accepted, but no further recommendation or action taken, although many could not endorse the wisdom of such a proceeding.

The committee appointed to assist the New Hampshire dentists in defending their State law, reported that the supreme court had decided that the law was unconstitutional in that it made personal distinctions merely on the ground of residence. The committee reported that they had nothing to do as the dentists of New Hampshire had wisely decided to drop all further contest and concentrate their efforts and secure a new and better law.

President A. W. Harlan then read his annual address in which he spoke feelingly of the death of Dr. Wm. H. Atkinson, the first president of the association; Dr. Edward Maynard, the well-known inventor dentist, and the one who perfected the non-cohesive gold filling system, and Dr. J. W. White, President of the S. S. White Dental Manufacturing Co., and the successful and respected Editor of the *Dental Cosmos*.

The president advised the abolishment of all standing committees, transferring the miscellaneous business matters of the association to an annually elected business board, or executive committee; the idea being to secure the full and uninterrupted time of the meeting for the reading and discussion of scientific papers.

Advised that the officers of the sections be changed oftener in order that more variety, and possibly improvement, in the quality of work done might be secured.

Advised such change of the constitution as would allow the association, or executive committee, by majority vote, to change the time and place of meeting, with the idea that if it should at any time seem desirable to hold a meeting in the south an agreeable season could be selected.

Advised the appointment of committees in suitable localities to assist in the organization of local societies in new States, cities, towns or districts where none now exist. This committee to be supervisory and report to this association.

Congratulated the association on the accomplishment, with so little apparent disturbance, of the extended college course of study required for graduation, and the influence it had exerted to bring this to pass.

After reading the president's address, on motion, a committee was appointed to which it was referred, with the request that it make such report for the action of the society as seemed expedient. This committee subsequently reported extended amendments to the constitution embracing not only the ideas advanced by the president, but some other seemingly desirable amendments, which under the rules will lie over until next year for action.

EVENING SESSION.

SECTION VI. Physiology and etiology was called and Dr. H. A. Smith reported as chairman. In continuation of the report from last year, the work of the committee had established the fact that implantation was successful for from three to five years. No person, so far as known, has been inoculated with disease through the practice of implantation. No operation for restoration of lost dental organs is so æsthetic or useful, and for these reasons it is to be commended, even though its existence be as brief as three years. The success of implantation in connection with antiseptic agents has revived interest in the subject of transplantation, and a combination of implanting and transplanting will often enable the skillful practitioner to utilize the socket of a tooth lost from pyorrhœa alveolaris or other cause.

In conclusion the committee beg to report that the profession is justified in performing this operation in suitable cases, inasmuch as the chances of success are favorable when a healthy tooth is implanted and the operation skillfully made.

Dr. Patrick, to whom the work of examining the prehistoric crania of the country had been delegated by this section, reported that 2,096 skulls have been examined but the reports came in too late for classification for this meeting. The crania at Harvard were examined by Dr. Andrews; at Philadelphia, by Dr. Peirce; at St. Louis, by Drs. McKellops and Fuller; at Chicago, by Drs. Ottofy and Davis. Other collections were being exam-

ined in various parts of the country. Some valuable collections could not be examined except by the curators of the museums where they are located, and as this would involve expense a request was asked for more money to carry on this work. At a subsequent meeting five hundred dollars (\$500) was voted in addition to a similar amount voted last year. Dr. Patrick exhibited the blank forms used with the directions for taking the measurements and requested that any one living near a collection should send to him for the blanks and make the examinations. He also exhibited some of the charts filled in with the data obtained from examinations already held.

Dr. Eugene S. Talbot read a paper entitled, "Mouth Breathing not the Cause of Contracted Jaws and High Vaults."

Mouth breathing was unknown among the earlier races and is not observed among the present uncivilized races. Dr. Delavan (see *International Dental Journal*, January, 1891) thinks mouth breathing compels the constant dropping of the lower jaw, producing by the stretching of the muscles a lateral pressure on the bones of the face which results in crushing or compressing them. Other authors attribute the compression to the tension put upon the buccinator muscle alone. Dr. Talbot describes the anatomical peculiarities of the bones of the face at considerable length in regard to their construction to resist force, etc., at too great length for our abstract. The hard palate does not assume the normal shape until the twelfth year, or after the teeth assume their positions in the arch. And by measurements made on a large number of skulls and models (over 6,000) the height of the vault measured from a line drawn across it between the second bicuspid and first molars at the margin of the alveolar process varies from one-fourth of an inch (the lowest) to one inch, the highest observed. The alveolar process is developed for the support of the teeth and it conforms to the positions taken by the teeth, while the maxilla is not appreciably disturbed by any abnormal positions taken by the teeth. Many cases of contracted arches were observed unaccompanied by mouth breathing; on the contrary in cases of mouth breathers he observed many normal arches. Mouth breathing sometimes begins early in life,

but contracted arches seldom occur until the seventh to the tenth year. These contracted arches always assume the V-shape, saddle shape, or a modification of one or the other, or the two.

There are more contracted jaws among the low than the high vaults, but the deformity in the high vault is more marked. In the V-shaped arch the contraction begins at the first molar and extends to the incisors, projecting the process. While in the saddle-shaped the bicuspid alone are crowded inward and there is no projection of the process or incisors. The contracted hard palate is also associated with the V-shaped and never with the saddle-shaped deformity. The high vault is never seen in the deciduous set of teeth.

The buccinator muscle is used for blowing and keeping food under the teeth when eating, and during sleep there can be no tension on this muscle. As this muscle in its attachment only extends as far forward as the first bicuspid it could not possibly be a factor in producing the V-shaped arch; neither could the orbicularis oris, as the action of this muscle would be to drive the incisors inward and backward, directly antagonizing any possible tendency of the buccinator to do this. The roots of the teeth have nothing to do with determining the position of the teeth, or the shape of the arch, as they are developed largely after the tooth has taken its position in the arch. If the muscles were active in producing the deformity it would be uniform on both sides of the mouth, but such is not the case generally. The muscular action is not sufficient to bend the hard palate by any pressure made upon the teeth. But there is no bending of the bones; the process is one of absorption and deposition, and besides the muscular power of the tongue is sufficient to counteract the muscular power of the facial muscles. Partial irregularities preclude the muscular cause. In most cases the cause of the deformity is the arrest of development of the maxillary bones, due to hereditary influences or disease. An examination of 4,614 cases gives an average height of the arch of 0.58 of an inch. In the saddle-shaped arch the average height was 0.60 of an inch. In the V-shaped arch the average height was 0.55 of an inch. In the semi-V-shaped arch the average height was

0.56 of an inch. The height of the vault seems to depend upon the shape of the cranium, or have a uniform relation to it. The impression that the vault of contracted arches is higher than the normal is erroneous, and due to the contracted arch.

The author of the paper exhibited models of twenty-four mouth breathers, from one to twenty-four years of age, none of which showed any special tendency toward contracted arches or high vaults.

DISCUSSION.

Dr. Friederichs does not think an examination of even six thousand cases sufficient to establish a typical arch.

Dr. Frank Abbott would congratulate Dr. Talbot and thought he had satisfactorily established the fact that mouth breathing does not produce the V-shaped or saddle-shaped arches.

Dr. Fillebrown agreed with the essayist in the statement that the buccinator muscles could not be important factors in producing this deformity since there was considerable space between the teeth and the muscles when the lower jaw was dropped to its utmost.

Dr. Horton was surprised to learn that mouth breathing was confined to the civilized races, and he would like more information on this subject.

Dr. Watkins would like to know if mouth breathing after the eruption of the teeth would cause the vaulted arch. Dr. Talbot said he had never seen the V-shaped arch in the jaws of children.

Dr. Peirce: Mouth breathing has not been generally given as the cause of contracted arches. The reason why there is no V-shaped arch in children is that the child's jaw is developed largely before it is born, and when there can be no mechanical pressure exerted to malform it. If the malformation is produced between the ages of eight and twelve years, that is the time when the permanent bicuspid and cuspid are taking their places in the arch, and the contracted arches could easily be produced by the muscular pressure brought to bear upon them by the labial and facial muscles.

Dr. Morgan: It is uncommon to find among the negroes high vaults or contracted arches or irregularities of the teeth, an

indication that the malady may predominate among highly civilized people.

Dr. Truman would like to know why the permanent bicuspid are thrown in by the activity of the muscles, and the deciduous molars are not.

Dr. Peirce thought that was due to the fact that the crowns of the temporary teeth had developed so far and taken their normal positions in the arch that the action of the muscles in the babe were not sufficient to produce the contraction, especially as the alveolar process begins to develop as soon as the crown is formed and this would resist the action of the muscles.

Dr. Patrick: The measurements given in this paper are worth nothing so far as they have been used to establish a fact. Averages are not scientific, they are tentative, speculative. Every additional measurement will change and destroy the average. Averages are useless. These measurements were not made of any single race or class of people or they might be useful in establishing scientific facts. Averages destroy individuality and prevent classification. Measurements are good, but averages prove nothing. No two individuals are alike, consequently a system of measurements have been useful in identifying criminals, but the adoption of the average system for this purpose would be folly. So it is in this instance.

Dr. Talbot in closing the discussion said that if the muscles were the cause of the contracted arch, the first molar would be likely to be affected, which it never is.

Dr. L. E. Custer read a paper entitled, "The physiology of the action of obtundents."

The dentinal fiber is composed of simple protoplasm, with exalted sensibility. It contains albumen and is coagulable. It contains much water and does not entirely fill the dentinal tube, being surrounded by water. This water can be removed. The temperature can be reduced. There is no blood circulation, consequently anodynes introduced systemically cannot produce an effect rapidly. The successful agent for obtunding sensitive dentine, must not be a coagulant, must have an affinity for water, and a penetrative property exceeding the ordinary nutritive pro-

cess. Change of structure is most easily and readily accomplished by coagulants. Extreme heat is capable of coagulating the fiber deeply. Penetrating escharotics, because their activity cannot be limited, are dangerous as they endanger the life of the pulp. Desiccation, by extracting the water from the tubuli of the dentine around the fiber and from the fiber itself as well, will destroy the function temporarily and consequently produce insensibility. The watery contents of the dentine is extracted by evaporation, and in this condition the application to the dentinal fiber of an agent having a strong affinity for water will extract its watery constituent. Many agents are used for this purpose, but absolute alcohol is the most acceptable and a representative. The water of the dentine is easily extracted, but the molecularly held water of the fiber is more difficult to abstract, hence the difficulty experienced in efforts to obtund sensitive dentine. Evaporation and affinity are the two great factors in dehydration. Complete insensibility is more easily obtained by dehydration than by coagulation, but the most profound effects are to be had by a combination of the two methods. In addition to dehydration, chloride of zinc, as a representative coagulant, is used to produce profound impressions. This method must necessarily be exceedingly painful. Change of temperature is another popular method of producing insensibility. Lowering of temperature will produce a corresponding lower neural activity until complete insensibility will have been obtained. Refrigeration is a more practical method of anæsthesia than the chemical methods. Volatile agents are used to produce refrigerating anæsthesia, such as sulphuric ether, chloride of methyl, rhigolene, nitrous oxide, etc. These agents do not dehydrate, but lower temperature. Owing to the fact that sufficient dehydration or coagulation cannot be had to obtain insensibility without endangering the life of the pulp, the most practical and safe method of obtunding sensitive dentine is by refrigeration.

The application of vaporizable agents in a warm or hot blast are essentially methods of desiccation. The heat being the only virtuous agent unless the medicament have an affinity for water. Alcohol in this connection is valuable because of its affinity for

water, but the volatile oils have no such affinity and consequently little or no value.

There was no discussion of Dr. Custer's paper.

By suspension of the regular order of business, Dr. Corydon Palmer had hung upon the wall an excellent oil painting of Dr. W. H. Atkinson, which he uncovered and in a brief speech presented it to the association.

(To be continued.)

Tennessee's Dental Law.

"A bill entitled 'An Act to Regulate the Practice of Dentistry in the State of Tennessee, and to Punish Violators thereof.'"

SECTION. 1. *Be it enacted by the General Assembly of the State of Tennessee, That it shall be unlawful for any person to practice, or attempt to practice, dentistry or dental surgery in the State of Tennessee without first having received a diploma from some reputable dental college, school, or university department, duly authorized by the laws of this State, or some other of the United States, and in which college, school, or university department there are at the time of issuance of such diploma annually delivered a full course of lectures and instructions in dentistry and dental surgery; Provided, That nothing in Section 1 of this Act shall apply to any person engaged in the practice of dentistry or dental surgery in the State at the time of the passage of this Act, except as hereinafter provided. And, provided further, That nothing in this Act shall be so construed as to prevent physicians, surgeons or others from extracting teeth.*

SEC. 2. A Board of Examiners, consisting of six practicing dentists of acknowledged ability as such, two of whom shall be residents in each of the three subdivisions of the State, East, Middle and West Tennessee, is hereby created, who shall have authority to issue certificates to persons in the practice of dentistry or dental surgery in the State at the time of the passage of this Act; and also, to decide upon the validity of such diplomas as may be subsequently presented for registration, as hereinafter provided, and issue certificates to all applicants who

may hereafter apply to said Board and pass a satisfactory examination.

SEC. 3. The members of said Board shall be appointed by the Governor, and shall serve for a term of three years, excepting that the members of the Board first appointed shall be made as follows; Two for one year, two for two years, and two for three years, respectively, and until their successors are duly appointed. In case of vacancy occurring in said Board by resignation, removal from State, or death, such vacancy may be filled for its unexpired term by the Governor as provided by this Act.

SEC. 4. Said Board shall keep a record, in which shall be registered the names and residence, or places of business, of all persons authorized under this Act to practice dentistry or dental surgery in this State. It shall elect one of its members President and one Secretary thereof. And it shall meet at least once in each year, at the time and place fixed for the meeting of the State Dental Association, and as much oftener and at such times and places as it may deem necessary. The majority of the members of said Board shall constitute a quorum, and the proceedings thereof shall be open to public inspection.

SEC. 5. Every person engaged in the practice of dentistry or dental surgery within this State at the time of the passage of this Act shall, within six months thereafter, cause his or her name, residence and place of business to be registered with said Board of Examiners, upon which said Board shall issue to such persons a certificate duly signed by a majority of the members of said Board, and which certificate shall entitle the person to whom it is issued to all the rights and privileges set forth in Section 1 of this Act.

SEC. 6. Any person desiring to commence the practice of dentistry or dental surgery within this State after the passage of this Act, shall before commencing such practice, file for record in a book kept for such purpose, with said Board of Examiners, his or her diploma, or duly authenticated copy thereof, the validity of which said Board shall have the power to determine. If accepted, said Board shall issue to the person holding such diploma a certificate duly signed by all, or a majority of the

members of said Board, and which certificate shall entitle the person to whom it is issued to all the rights and privileges set forth in Section 1 of this Act: *Provided*, That any person, whether holding a diploma aforesaid or not, shall have the privilege of making application to said Board, and upon undergoing a satisfactory examination, shall be entitled to a certificate in like manner as a person holding a diploma, and upon the same terms.

SEC. 7. To provide for the proper and effective enforcement of this Act, said Board of Examiners shall be entitled to the following fees, to-wit: For each certificate to persons engaged in the practice in the State at the time of the passage of this Act, the sum of one dollar; for each certificate issued to persons not engaged in the practice of dentistry in the State at the time of passage of this Act, the sum of five dollars.

SEC. 8. The members of said Examining Board shall receive the compensation of five dollars per day for each day actually engaged in the duties of his office, which, together with all other legitimate expenses incurred in the performance of such duties, shall be paid from the fees and penalties received by the Board under the provisions of this Act, and no part of the expenses of said Board shall at any time be paid out of the State Treasury. All moneys in excess of said "*per diem*" allowance and other expenses shall be held by the Secretary of said Board as a special fund for meeting the expenses of said Board, he giving such bond as the Board may from time to time direct, and said Board shall make an annual report of its proceedings to the Governor by the 15th day of December of each year, together with an account of all moneys received and disbursed by them in the pursuance of this Act.

SEC. 9. Any person who shall violate this Act by practicing or attempting to practice dentistry or dental surgery within the State, without first complying with the provisions of this Act, shall be deemed guilty of a misdemeanor, and upon conviction thereof shall be fined in a sum not less than twenty-five nor more than three hundred dollars.

SEC. 10. This Act shall take effect from and after its passage, the public welfare demanding it.

SELECTIONS.

The Creosote Treatment of Tuberculosis.

BY THEODORE POTTER, A.M., M.D.

Lecturer and Demonstrator in Bacteriology, Medical College of Indiana.

In a recent number of the *Berliner Klinische Wochenschrift*, Sommerbrodt, the chief advocate of the creosote treatment of tuberculosis, gave a review of his thirteen year's experience. Various authorities had used creosote in this disease, but to Sommerbrodt, of Breslau, is due the chief credit for giving the method its present prominence. In again calling the attention of the profession to the value of the drug, Sommerbrodt suggests it as a supplement to the Koch treatment, and urges that it has the advantage of Koch's method in being applicable to all forms and stages of the disease, and in being subject to no contraindications. He cites seventeen cases taken because they illustrate the points he wishes to emphasize. These cases were all seen by other physicians, the diagnosis well established in most by the presence of the tubercle bacillus and whose histories extend over a number of years. In most of them also climatic treatment was not available.

Sommerbrodt refers to the experiments by Koch and Fraentzel and by Cornet, to determine, if possible, the influence of creosote on the tubercle bacillus. Cornet inoculated several guinea-pigs with tuberculosis, and then gave them creosote by the stomach. No effect was discoverable for all the animals died of the disease. Sommerbrodt urges that such experiments should not condemn the creosote treatment; for, in the first place, experience has shown that inferences from experiments on animals must be transferred to man with great caution; and second, he quotes Koch himself as having stated that men are many times more susceptible to the "lymph" than guinea-pigs. Why, asks Sommerbrodt, may not the same thing be true of creosote?

Such experiments do not negative the facts of clinical experience.

Sommerbrodt suggests that an attempt should be made to cultivate the bacillus on blood serum obtained from men who had been under the creosote treatment for six or eight weeks. This has not yet been done. Guttman, however, has shown that 1 to 4,000 creosote will prevent the growth of the bacilli on culture soils.

The results of Sommerbrodt's experience with five thousand cases are, that in a considerable proportion, and that greater than under any other plan, definite recovery may be secured, provided the proper method is carried out. He emphasizes the importance of early diagnosis and treatment, and lays much stress upon four factors which, he says, have not heretofore been fully appreciated by the profession. These are :—first, the necessity of using a good quality of creosote ; second, large doses, *i. e.*, a gramme or more daily ; third, continuing the drug a long time, *i. e.*, several years in many cases, and always for some months after all symptoms have disappeared ; fourth, the medicine must always be given after the three principal meals, never on an empty, or comparatively stomach. He gives the creosote with balsam tolu, or cod liver oil, in small capsules. Many of his patients have taken from one to two grammes daily for long periods. Some of the cases reported have used it for two, three and four years, or even more. He insists also, that begun in small doses, increased gradually, and observing the rules laid down, it does not often disturb the digestion, but rather the opposite. The profession must change its views on this point, as his five thousand cases have taught.

This report is valuable as coming from a careful and skillful observer, but chiefly because it covers a long period of time, and is not based upon the deceptive experience of a few months. The treatment is simple, certainly free from any danger, does not exclude the use of any or all other agents, and it does look as though it were really curative.

The writer has used the creosote plan as fathered by Sommerbrodt for some time, and can, at least, confirm the statement that in but few cases, properly used, is it necessary to retreat to save the stomach.

How to Clean Old Slides and Utilize Spoiled Mounts.

Dr. H. M. Whelpley, F.R.M.S., writes : For two years past I have permitted soiled slides and spoiled mounts to accumulate in a box set aside for that purpose. The process I have recently followed in reclaiming them has been successful. I first placed the unsightly rubbish in a dish of clean water, where it remained until all the labels were readily removed. With an old knife I next scraped off the cells and all cement that could be easily removed in this manner. All slides where glycerine or other substance soluble in water had been used as a mounting medium were again washed, and then the entire pile spread out and dried. I separated those that were clean and placed the rest in alcohol for several days. This solvent cleaned another portion of the slides so that all they required to render them as good as new was a washing in water. The remaining dirty ones were treated to a bath of oil of turpentine, where they rested for a few days. From this they were washed with alcohol and then finished in water. The few refractory ones that held out during all this time were made as clean as ever with benzol.

Although considerable time elapsed before the last slide was cleaned, it required but a few minutes of actual labor in the entire process. The time consumed is in letting them stand in the different liquids. Nor is the process expensive, as the oil of turpentine did most of the work. Hereafter I shall divide my old slides into three classes and clean them separately, so that less alcohol will be required. The first box will contain slides that can be washed clean with water, the second lot will be those that alcohol will clean, and the third one requiring benzol. Cover-glasses are so cheap that I do not save them unless they are easily cleaned with water. I find it very difficult to properly clean thin cover-glasses that have cement on them.—*American Microscopical Journal*.

TOOTHACHE DROPS.—A novel toothache tincture is recommended. It is composed of 2 drops of pure coniine and 8 drops of oil of cinnamon dissolved in 4 drops of rectified spirit. A single drop of the tincture on cotton wool placed in the tooth is said to give splendid results.—*Druggists' Bulletin*.

Bromide of Ethyl in Dental Practice.

Probably every one is pleased to learn that our experts are still busy experimenting with anæsthetics. The results given at the last meeting of the Odontological Society were not such as will, we imagine, encourage the adoption of Nunneley's anæsthetic among English dentists. Dr. Silk, who introduced the interesting young stranger, was not able to state a very strong case for him, his appendix showed that in a rather large number of cases more or less untoward symptoms followed its use. However, it must be remembered that some of these were hardly test cases, inasmuch as Dr. Silk had adopted a better method in the latter ones. The surgeons who spoke of their experience in operating upon patients who were under the bromide did not find it satisfactory, as there seemed some doubt when the patient was "under," and the after sickness, as with chloroform and ether, struck them as placing the anæsthetic behind our old familiar friend "the gas." It is curious how nitrous oxide holds its own, at one time cocaine, at another oxygen and other gases crop up, and now bromide of ethyl, but like Tennyson's brook—"gas" 'goes on forever.' The late Mr. Clover thought ethidene dichloride was to oust gas and every thing else, but his vaticination has fallen to the ground. The anæsthetists who spoke on Dr. Silk's paper, although several of them had not tried bromide of ethyl in dental practice spoke strongly against its use, and if as was urged by Dr. Dudley Buxton, the action of this anæsthetic is physiologically that of chloroform, its employment in dentistry must be open to the objections usually advanced against that substance.—*Editorial in Dental Record.*

SALT IN MILK FOR CHILDREN.—The addition of sodium chloride prevents the solid coagulation of milk by either rennet or gastric juice. The cow's milk ought never to be given without table salt, and the latter ought to be added to a woman's milk when it behaves like cow's milk in regard to solid curdling and consequent indigestibility. Habitual constipation of children is influenced beneficially, since not only is the food made more digestible, but the alimentary secretions, both serous and glandular, are made more effective by its presence.—*Arch. of Ped.*

SWEATING OF THE HANDS.—A lotion composed of four ounces of cologne water and a half an ounce of tincture of belladonnæ is highly recommended as a cure for the disagreeable sweating of the hands and feet, from which many persons suffer. The affected extremities should be rubbed two or three times a day with the lotion.

TO REMOVE IODOFORM ODOR FROM HANDS.—For the removal of the iodoform odor from the hands and utensils, Bienert recommends washing once or twice with linseed oil and water. The odor is said to disappear with surprising quickness..—*Pharm. Centralhalle.*—*Druggists' Bulletin.*

Statistics of Anæsthetics.

We believe that St. Bartholomew's Hospital is the only one in the metropolis in which a record is kept, and statistics published of the number of times anæsthetics are administered during the year. These statistics are both interesting and instructive, and become valuable as showing the direction of the current in favor of or against a particular anæsthetic agent. Turning, for example, to the records of 1879, we find that out of 2,034 anæsthetizations chloroform was given 975 times, nitrous oxide gas alone 112 times, ether alone 23 times, and ether preceded by nitrous oxide 984 times. In 1889, however, the records are as follows: In 3,606 administrations—chloroform, 1,601 times, gas 686, ether 810, gas and ether 509 times. Thus, on comparing these figures the remarkable fact becomes apparent that chloroform has again come to the front as the most popular anæsthetic at St. Bartholomew's Hospital. Not only does the mixture of ether and gas not maintain its position of superiority as was the case in the year 1879, but in 1889 not even the total administrations of ether alone, and gas and ether combined reach by a long way the number of administrations of chloroform. It is just possible that in part this change of opinion may be due to the results published by the Hyderabad Commission, of which a member of the staff of the hospital was the shining light. But

investigation shows that ether has been declining in favor for some years at St. Bartholomew's. In 1888 it was administered 1,003 times out of 3,788; while, during the same year, gas and ether combined was only given 349 times. What a contrast this with eleven years ago, as the records above quoted demonstrate! As we see now, chloroform takes the lead, then a long way behind comes ether alone, while gas and ether combined make a shocking bad third.—*Medical Press and Circular*.

Hippocrates on Injuries to the Skull—Their Surgical Treatment.

From Adam's recent translation of the genuine works of Hippocrates, issued by Wm. Wood & Co., we quote the conclusions of the author, as summarized by the translator, in this important department of surgery. They are of especial interest just now from the prominence which is being given to brain surgery.

1. Hippocrates recommended the operation of perforating the cranium in cases of simple fractures and contusions, whenever he apprehended that these would be followed by serious consequences, such as inflammation, extravasation of blood or effusion of matter.

2. Hippocrates operated in these cases during the first three days, before any serious symptoms had come on.

3. The objects which he had in view in this class of cases would appear to have been to "slacken the tightness of the skull" and procure the evacuation of extravasated blood.

Hippocrates regarded fracture accompanied with depression and a considerable separation of the bones as being generally less dangerous than severe contusions and simple fractures; as in the former case the brain is less hurt by the vibration of the shock which inflicted the injury, and there is an outlet to any noxious matters which may get congested in the brain.

5. Hippocrates did not operate, as a rule, in cases of depression, not even in cases of comminuted fractures, but left the pieces of bone, in the latter case, to separate by suppuration.

The Transplantation of Teeth.

The transplantation of teeth is a procedure, the practical value of which has not as yet been fully established. It is true that a number of cases have been reported in which teeth have been successfully implanted in alveoli from which they have been accidentally removed, or transplanted from one person's jaw to another's, but the permanence of the results thus obtained is still a matter of question. Of course, to secure success from this operation the implanted tooth must contract firm adhesions to the surrounding alveolar structures, and hence it is necessary to investigate closely the processes by which union occurs in these cases.

In a monograph on this subject Dr. Julius Scheff details a large number of experiments made on animals, together with histological examinations, which tend to show that, in the majority of instances the union is periosteal. It may take place by first intention, the alveolar periosteum uniting directly with the cement of the tooth, without absorption of the latter; or the periosteal proliferation may produce a more or less extensive absorption of the cement, which if carried too far may result in extrusion of the tooth. The experiments also demonstrated that the pulp of every implanted tooth becomes necrotic, and this condition may persist, notwithstanding the occurrence of firm periosteal adhesions, or a new tissue may take the place of the necrotic structures. In the dog this new tissue originates in the pulp canals and consists of a delicate vascular connective tissue which differs from the normal pulp by the absence of odontoblasts, or it results from a proliferation of the periosteum into the pulp canals through openings caused by absorption of their walls. If the latter occurs the periosteum may undergo osseous transformation after absorption has ceased.

It would seem from the author's experiments that implanted teeth usually become fixed to the alveolar cavity by firm periosteal adhesions, and that the union is likely to be permanent if the necrotic changes in the pulp have not advanced too far. Of great interest in this connection are the investigations recently

made by a Russian physician, Dr. Znameusky, regarding the implantation of artificial teeth both in animals and human beings. He experimented with teeth constructed of porcelain, hard-rubber and metal, at the roots of which he made a large number of fine incisions. The process by which union was brought about consisted in a proliferation of granulation tissue from the alveolar walls into the fine openings at the root of the tooth, thus holding it firmly in position. It is questionable, however, whether artificial teeth can be imbedded with sufficient firmness to withstand, for any length of time, the violence to which they are subjected during mastication.—*International Journal of Surgery.*

Transmissibility of Syphilis.

As published in Prof. Morrow's *Atlas of Venereal and Skin Diseases*, conclusions in reference to the hereditary transmissions of syphilis are as follows :

1. A syphilitic man may beget a syphilitic child, the mother remaining exempt from all visible signs of the disease ; the transmissive power of the father is comparatively restricted.

2. A syphilitic woman may bring forth a syphilitic child, the father being perfectly healthy ; the transmissive power of the mother being much more potent and pronounced and of longer duration than that of the father. When both parents are syphilitic, or the mother alone, and the disease recently acquired, the infection of the foetus is almost inevitable ; the more recent the syphilis the greater the probability of infection, and the graver the manifestation in the offspring.

3. While hereditary transmission is more probable when the parental syphilis is in full activity of manifestation, it may also be effected during a period of latency when no active symptoms are present.

4. Both parents may be healthy at the time of procreation, and the mother may contract syphilis during her pregnancy and infect her child in utero. Contamination of the foetus during pregnancy is not probable if the maternal infection takes place after the seventh month of pregnancy.

Medical Properties of Vegetables.

Spinach has a direct effect upon the kidneys.

The common dandelion, used as greens, is excellent for the same trouble.

Asparagus purges the blood. Celery acts admirably upon the nervous system, and is a cure for rheumatism and neuralgia.

Tomatoes act upon the liver.

Beets and turnips are excellent appetizers.

Lettuce and cucumbers are cooling in their effects upon the system.

Onions, garlic, leeks, olives and shallots, all of which are similar, possess medical virtues of a marked character, stimulating the circulatory system and the consequent increase of the salivary and gastric juices, promoting digestion.

Red onions are an excellent diuretic, and the white ones are recommended to be eaten raw as a remedy for insomnia. They are tonic and nutritious. A soup made from onions is regarded by the French as an excellent restorative in debility of the digestive organs.—*Scientific American*.

“MEDICINE consists in addition and subtraction, the addition of those things which are deficient, and the subtraction of those things which are redundant; and he who practices this is the best physician, and he whose practice is furthest from it, is the furthest removed from a knowledge of the art.”—HIPPOCRATES.

“HAPPY is he, therefore, who judges correctly and knows men—himself included—intuitively, or from early training, whose feelings are balanced by his intellect, and who is thoroughly in earnest in striving to do that which is good. But he whose environment has not been, or is not so favorable, and still who chooses to do that only which is right, is the truest exponent of free agency, whose living has made the world better than he found it, and who impresses most deeply his identity on the brightest pages of the history of the country, or the community in which he lives.”—Extract from PROF. J. S. CASSIDY’S address to graduating class at Cincinnati, March 11, 1891.

Teeth in Diabetes.

The importance of early diagnosis in diabetes can not be overestimated because the prognosis may be much influenced by the institution of early treatment. It is interesting, therefore, to call attention to the fact that the *Wiener Medizinische Presse*, January 4, 1891, contains a brief abstract of a publication by Magitot in *Bulletin Medical*, in which he dwells upon the diagnostic significance of alveolar osteo-periostitis as a manifestation of diabetes. He has noticed in this disease a deviation of the tooth which later becomes loosened. At the same time an alveolar catarrh exists.

Ultimately the tooth falls out. In the further course of the disease the alveolar border of the bone may be absorbed, and this in turn may be followed by gangrene of the gum.—*Medical and Surgical Reporter*.

Drinking Ether.

There has lately been a great outcry concerning the consumption of ether by the Irish who have chosen it as an intoxicant, and in the House of Commons, in answer to a question by Dr. Tanner, Mr. Balfour said: "As stated by my right honorable friend the Chancellor of the Exchequer, in reply to a question addressed to him on December 1st, ether has been scheduled and it can now only be sold by qualified chemists or druggists as a poison." The statement laid before the executive government by Mr. Thomas Ledlie afford some idea as to the alarming proportions the habit had assumed. Mr. Ledlie calculates that seventeen thousand gallons of impure ether of the vilest form is annually consumed by the people in the districts situated in the counties of Derry and Tyrone, as well as parts of Armagh, Monaghan and Fermanagh, no fewer than 100,000 people spread over an infected area of 190,000 acres indulge in this baneful habit. He suggests six ways of getting rid of what he considers a baneful practice, the chief of which may be summarized as follows: The introduction of naphtha into the preparation of all ether, save

that used purely for medicinal purposes, which would give it nauseating odor and taste, the reimposition of a prohibitive tax, and the making of the practice illegal and placing it upon the criminal code, as well as making the sale of ether illegal by all all persons save chemists, and by this class of persons only for *bona fide* medicinal or commercial purposes.—*Letter to Am. Jour. Med. Ass'n.*

A Simple Method of Curing Obesity.

In a French journal is announced the discovery of a means, as simple as it is strange, for curing obesity which is attributed to a medical officer in the army. Thanks to this means, a colonel who was threatened to be obliged to retire from the army, as he was so heavy that it required two men to lift him into the saddle, became thin in a few weeks, and to such an extent that he had to take means to recover, in a measure, what he had lost. It was to his doctor that he was indebted to have become a general. The means consisted simply in never eating more than one dish at each meal, no matter what that dish may be, and a person may consume as much as the stomach may bear, and satisfy the appetite without the least reserve. Nevertheless, nothing but the one dish should be taken; no condiments, nor soups, nor supplementary desserts should be allowed. This system was recommended by the author to a lady who was slightly obese, and who put it into practice with the best results. The lady observed that she suffered no inconvenience whatever from this diet, and the result obtained by the medical officer may be well understood, as she found by her own experience that the partaking of one dish, whether it be meat, fish, or vegetables, brought on a sense of satiety much sooner than if she had partaken of a variety of dishes, whence the effect of relative abstinence.—*Mass. Med. Journal.*

“ASEPSIS and antiseptis form the rock upon which the edifice of modern surgery is founded, and in virtue of which it has registered triumphs in the treatment of diseased conditions of the human body formerly unattainable.”—W. D. MILLER, M.D., D.D.S., Berlin.

Effects of Strychnine on the Stomach.

The effect of nitrate of strychnine on the functional activity of the stomach has been recently made the subject of a careful research by Dr. Gamper, of St. Petersburg, who employed for the purpose of his experiments four healthy young hospital assistants. He found that strychnine increased the amount of gastric juice secreted, the general acidity, and the quantity of free acid in the secretion. It also hastened the absorption from the stomach, and strengthened the mechanical movements. Its effect, too, continued for some time after its administration had been stopped. Like many other Russian observers Dr. Gamper seems to have been highly impressed by the value of strychnine in chronic alcoholism, declaring that it is the most effective of all drugs in such cases. The thesis contains a long list of references to the literature of stomach affections, published in six or seven languages during the last ten years.

IMPORTANT IMPROVEMENT IN MICROSCOPE LENSES.—It is stated that an immense improvement has recently been effected in the manufacture of glass for optical instruments by means of the addition to the ordinary materials of phosphorus and chlorine, which in some as yet unexplained way cause the glass to be very much more transparent, and enable it to receive a much higher degree of polish than any optical glass hitherto manufactured. Thus microscopes can be made which will render objects of the diameter of only the one-eighth millionth of a millimetre visible, whereas with the best instruments now in use the diameter of the smallest object that can be seen is one-sixteenth thousandth of a millimetre.

Physiology in the Schools.

The following question and answer record what actually happened in a "district school" in the State of Pennsylvania, in a junior class in physiology:

TEACHER.—What teeth come last?

PUPIL.—False teeth.

Lukewarm Baths to Restore the Warming Power of Age to Youthful Vigor.

BY JAMES E. EMERSON, BEVER FALLS, PA.

I have for a long time (being now past 67) suffered from muscular rheumatism, being feverish from weakness of the muscles. I had for a long time known that old people actually dry up so that the tissues become inactive. I also have known that to use a very stiff scrubbing brush vigorously would toughen the parts and clean the skin ready for absorption through the pores of moisture, so that, by lying in a tepid bath, with the water at from 88° to 92° Fahrenheit, for from a half to one hour, the body would actually absorb by weight from two to three pounds of water. Benjamin Franklin, at about 60, began to feel greatly the encroachments of old age, so he went to Dr. Darwin for advice. The Doctor recommended to him the lukewarm bath, to be taken twice a week. Franklin followed this advice, and very soon noted the beneficial effects of these warm baths upon his aged body. He is said to have continued their use up to within a short time of his death, which was at 84, and to the very last was strong and vigorous in body and mind. It restores elasticity and smoothness to the skin; it loosens the tissues and thereby brings back fullness and soundness of limbs. It prevents eruptions of the skin, and presently it removes them often even from the face. It prevents the body giving off too much heat, which enhances nutrition.

How to Extinguish Fire.

Take twenty pounds of common salt and ten pounds of sal ammoniac (muriate of ammonia, to be had of any druggist), and dissolve in seven gallons of water. When dissolved it can be bottled, and kept in each room in the house to be used in an emergency. In case of a fire occurring one or two bottles should be immediately thrown with force into the burning place so as to break them and the fire will certainly be extinguished. This is an exceedingly simple process and certainly worth a trial—
[*Annals of Hygiene.*

The Monkey Solves the Problem.

Monkeys have a keen sense of imitation and are always prone to copy their masters' movements whenever fancy strikes them. Seldom, however, is it that a monkey has proved itself useful by such an undesirable propensity. Yet one of these inquisitive creatures has, we understand, recently performed a feat in the matter of medicine-taking, and by so doing has earned for itself a reputation which deserves recognition. This is how it was: A practitioner recently received a box of Count Mattei's medicines, and one of his children getting hold of the box gave it to a tame monkey in the house. The animal very soon broke open the box, and taking a vial of anticanceroso, which is used as a cure for leprosy, swallowed 750 globules, besides some other fever medicines. The proper method of taking the anti-canceroso is to dissolve one of the globules in a quart of water, and the dose is a teaspoonful at a time. The monkey, however, is not only quite well, but as lively as ever, and must now be impervious to leprosy. Clearly, if the monkey had been able to read he would have been more discreet with Count Mattei's remedies, but as no harm happened to him, the presumption is that the remedies, are harmless however they are taken.—*Medical Press*.

Pathology of Grief.

That severe mental distress or fright sometimes produces physical disease, and occasionally even death, is an admitted fact, although the way in which it acts has hitherto been but little studied. In order in some measure to supply the deficiency in our knowledge regarding this matter, Dr. G. Bassi has recently made a number of observations on animals which apparently died in consequence of capture. Birds, moles, and a dog which had succumbed to conditions believed by Dr. Bassi to resemble those known amongst human beings as acute nostalgia and "a broken heart" were examined post-mortem. Generally there was hyperæmia, sometimes associated with capillary hemorrhages of the abdominal organs, more especially of the liver, also fatty and granular degeneration of their elements, and sometimes bile was

found in the stomach with or without a catarrhal condition. The clinical symptoms were at first those of excitement, especially in the birds, these being followed by depression and persistent anorexia. The theory suggested by Dr. Bassi is that the nervous disturbance interferes with the due nutrition of the tissues in such a way as to give rise to the formation of toxic substances—probably ptomaines—which then set up acute degeneration of the parenchymatous elements similar to that which occurs in consequence of the action of certain poisonous substances such as phosphorus, or to that met with in some infectious diseases. In support of this view, he points out that Schule has found parenchymatous degeneration in persons dead from acute delirium, and that Zenker found hemorrhages in the pancreas in persons who had died suddenly; he refers also to some well-known facts concerning negroes in a state of slavery, and to the occasional occurrence of jaundice after fright. He hopes that these hints may induce medical officers of prisons and others to study, both clinically and anatomically, this by no means uninteresting or unimportant subject.—*The Lancet*.

THE OLD FAMILY DOCTOR.—Some of the older ones of us are like good old Dr. Kittridge, who had lived right among sick folks for five and thirty years, and had a library of five and thirty volumes bound up in his head at the end of that time. He knew the bigger part of all the families in a dozen miles of him—those that have the way of living through every thing, and the other set that have the trick of dying without any sort of reason for it. He knew the years when the fevers and dysenteries were in earnest, and when they were only making believe. He knew the folks that think they are dying as soon as they're sick, and those that never find out they're sick until they're dead. There are things he don't know, for they came in after his day, and he is very glad to send for those who do know them when he is at fault. But he knows the people in his neighborhood as all the science in the world can't know them, unless it takes time about it, and sees them grow up and grow old, and how the wear and tear of life comes to them.—*From the address of Pres. J. C. Sexton, M.D.*

EDITORIAL.

The American Dental Association.

The thirty-first annual session of this body met at Saratoga, August 5th, continuing four days. The meeting was well attended by the representative men of the profession throughout the country; perhaps not as large a number in attendance as there has sometimes been heretofore, but we were agreeably surprised to find so many of the older members present. The work done in all respects by the meeting was quite equal to that of former years. That the method of work pursued at present and heretofore, is not wholly satisfactory was quite clearly indicated in the address of the president, together with the fact that a committee was appointed to take into consideration the suggestions made in the address, in reference to a change in the organization. This committee after due consideration recommended several radical changes which it is supposed, by many at least, will serve to make the work of the body more efficient, and free its legitimate work from much business embarrassment that has heretofore existed.

Five years ago the following standing resolution was adopted:

Resolved, "That any member of the dental profession who has been in reputable practice for a period of fifty years may be elected to permanent membership in this association without the payment of dues; and any member of this association who has been in practice for a like period shall have his dues remitted thereafter by presenting the fact to the treasurer of the association."

At that time one permanent member was elected in accordance with that resolution, viz., Dr. W. H. Dwinelle, of New York, who we are happy to know is still in active practice, though he has passed his fifty-second year of practice; he was also present at this meeting, seemingly hale and hearty as ever, and was ready to measure strength with any of the "boys." This year two other members came in for this honorable distinction of

Half Century Practitioners, viz: Dr. John B. Rich, of Washington City, and Dr. Corydon Palmer, of Warren, Ohio. Both of these men are known, and have an enviable reputation not only in this country, but throughout the world wherever dentistry is practiced. The man who can present a record of fifty years of reputable practice and service for his profession, is certainly entitled to more than ordinary honors. It is a grand thing to live fifty years in one continuous occupation, and a greater thing to have sustained and added to the honor and resources of that calling or profession throughout such a period.

One of the most interesting incidents of this meeting was brought about by Dr. Palmer, who has had prepared, by one of the finest artists in New York, a life-size portrait of the late Dr. W. H. Atkinson, which had been finely framed. The doctor asked the privilege of presenting a little matter to the association on his own account: this he did by placing upon the wall the portrait covered with canvass, and just at the moment when all who were most interested to know what was coming, the doctor unveiled the portrait with some very happy remarks appropriate for such an one as Dr. Atkinson, at the conclusion of which he presented the portrait to the association. The scene was a very striking one, and produced a hushed solemnity in the meeting.

A resolution of thanks was voted to Dr. Palmer which was most cordially given, and the present accepted. Dr. Palmer was made the custodian of the portrait until the society shall have a secure and fixed place for its deposit.

In regard to Dr. J. B. Rich, the other honorable member, his personal vigor, health and professional interest were a marvel to all present. He is as ever, in the active practice of his profession and seemingly fit for many years more of service.

An installment of a report of the proceedings of this meeting appears in the present number of the REGISTER; it will be completed in the next. The publication committee have the transactions in the hand of the printer, and doubtless it will be issued ere long.

New Dental Colleges.

How many new dental colleges have been organized in this country, and will enter upon a course of work this fall, we do not know; but we have received the announcements of several. Of these, there is the Dental Department of the Homœopathic Hospital College, of Cleveland, Ohio, fully organized and equipped, and will begin its first regular session on the 23rd inst. It has a full faculty, of which W. H. Whitslar, M.D., D.D.S., of Youngstown, Ohio, is Dean, and Professor of Principles and Practice of Dental Science, Dental Pathology and Embryology. George H. Wilson, D.D.S., of Painsville, Ohio, is Superintendent of Dental Infirmary. In the announcement it is stated that the college has adopted the requirements agreed upon by the National Association of Dental Faculties of the United States. The term is to be six months, and three full courses of lectures will be required for graduation. The requisites for admission are a degree in letters or science, a diploma from a high school or academy, a teacher's certificate, or to pass a creditable examination in orthography, penmanship composition, arithmetic, English grammar and United States history. It will be seen from this statement that the institution will start upon a good basis, and if it does good, faithful, efficient work, it should be recognized as a desirable acquisition to the educational resources of the profession in this country.

We have also received an announcement of the Dental Department of the Cincinnati College of Medicine and Surgery, Cincinnati, O. This has also been organized in connection with the medical college as just stated. G. S. Junkerman, M.D., D.D.S., is Dean of the Faculty, and Professor of Operative Dentistry and Oral Surgery. Charles H. Martin, D.D.S., is the Secretary of the Faculty, Professor of Dental Materia Medica and Dental Pathology. The announcement contains the following: "The Dental Department of the Cincinnati College of Medicine and Surgery will conform to all the rules and regulations, and all the requirements of The National Association of Dental Faculties." This school also proposes a six months term. The various

branches of the course, except those strictly special, are taught by the various professors of the medical faculty.

We have just received information, through a private source, that a dental department is organized in connection with a medical college in Detroit, and that it also will begin its first course this fall. We are not advised fully as to its details, and so are not just now able to specify. This is an enterprise, however, that has been talked of for two or three years, and the organization has been a foregone conclusion for some time. If it is put upon a sound basis, and proposes thorough work in the preparation of its students, and is faithful to the best interests of the profession, who shall say nay? Most of the dental colleges or departments that have been organized within the last four or five years have been in connection with, and are fostered by medical colleges; this is a natural result, perhaps from the recognition of dentistry as a specialty of medicine that has been so pronouncedly made within the last few years. In nearly every instance where these departments have been organized it has been upon the solicitation, or at least, suggestion on the part of medical faculties. In this fact is shown a great contrast between the present time and the time when Drs. Chapin A. Harris and H. H. Hayden sought to have a dental department organized in connection with a medical college in Baltimore, when the proposition was received with little short of actual contempt; truly the world moves.

The Indiana State Dental Association.

The thirty-third annual meeting of this society was held in the Dental College, at Indianapolis, on the 30th of June, continuing the sessions for three days.

This is one of the oldest of our State dental societies, and from what we saw during a visit to that meeting, and from the transactions which came to hand a few days ago, it is plain that this body is not suffering from age, it is, as we think clearly shown in its proceedings, gaining strength and vigor as it grows older. It is certainly keeping up in association work. Quite a number

of very good papers were read, there were ten in all, and all equal to if not above the ordinary papers read before such bodies; they all deserve to be read, re-read, and studied.

One that attracted very general attention as presenting in a very happy manner the subject, was by Dr. M. F. Ault, entitled "An Ideal College Curriculum." This subject was handled with a master hand; the subject was so fully presented, and so well discussed, that it seemed a work of supererogation to add much in the way of discussion, still it was discussed by quite a number.

Two forenoons were devoted to clinics, in which many new ideas were presented, and here, as elsewhere, well conducted clinics elicited much and earnest attention, which will always be the case when they are properly conducted, and subjects of interest are presented in them.

The society is abreast with the foremost in its organization. Its business affairs are conducted without consuming much of the time of the general meeting, being almost exclusively in the hands of the Executive Committee. The promptness with which the proceedings of the association have been issued is very commendable indeed; this, however, is due to the fact that the volume is published by a lady, Mrs. W. M. Herriott, the Proprietress of the "Indianapolis Dental Depot"; and here, did time and space permit, we should be glad to specify what has been done by the energy, pluck and perseverance of this woman. Her husband, Dr. W. M. Herriott, many years ago established "The Indianapolis Dental Depot," this he did under some embarrassing circumstances, that it is not necessary here to mention, under the great efforts to which he was subjected his health gave way, and seven years ago he passed away. Mrs. Herriott, instead of letting the business run down, or pass into other hands, took personal supervision of it, and has had its sole management from that to the present time, working out a greater success, if possible, than her husband had done. Under her management the business has been better than ever before, has been much extended, and is conducted as systematically and by as good business methods as any such establishment in the

country. The former embarrassment that rested upon it has, under her hand, entirely disappeared, and the whole enterprise is now a most successful and desirable one. This we regard as a heroic effort on the part of Mrs. Herriott, and one that will stand as an illustration of what an earnest, capable woman can do. It is gratifying to state that the dental profession of Indiana, and even of its vicinity, have nobly stood by "The Indianapolis Dental Depot," and we are sure that the best wishes of the profession will be extended for the success of Mrs. W. M. Herriott.

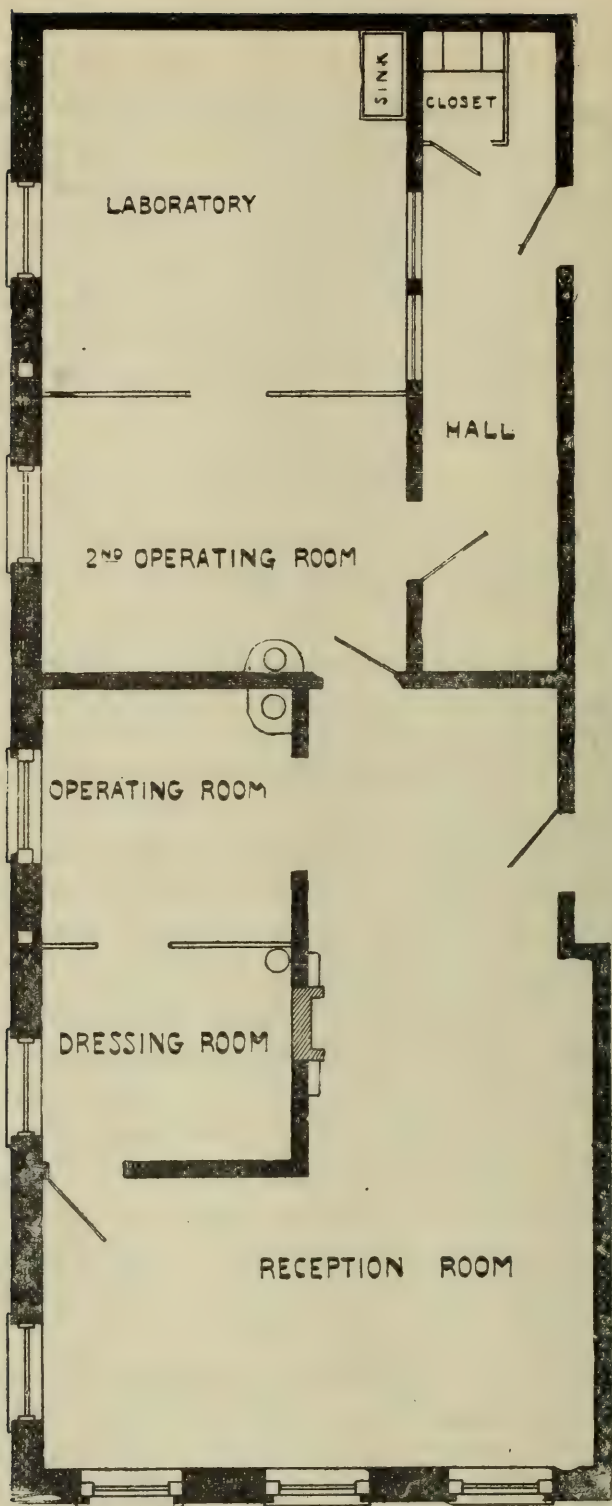
Office Plans.

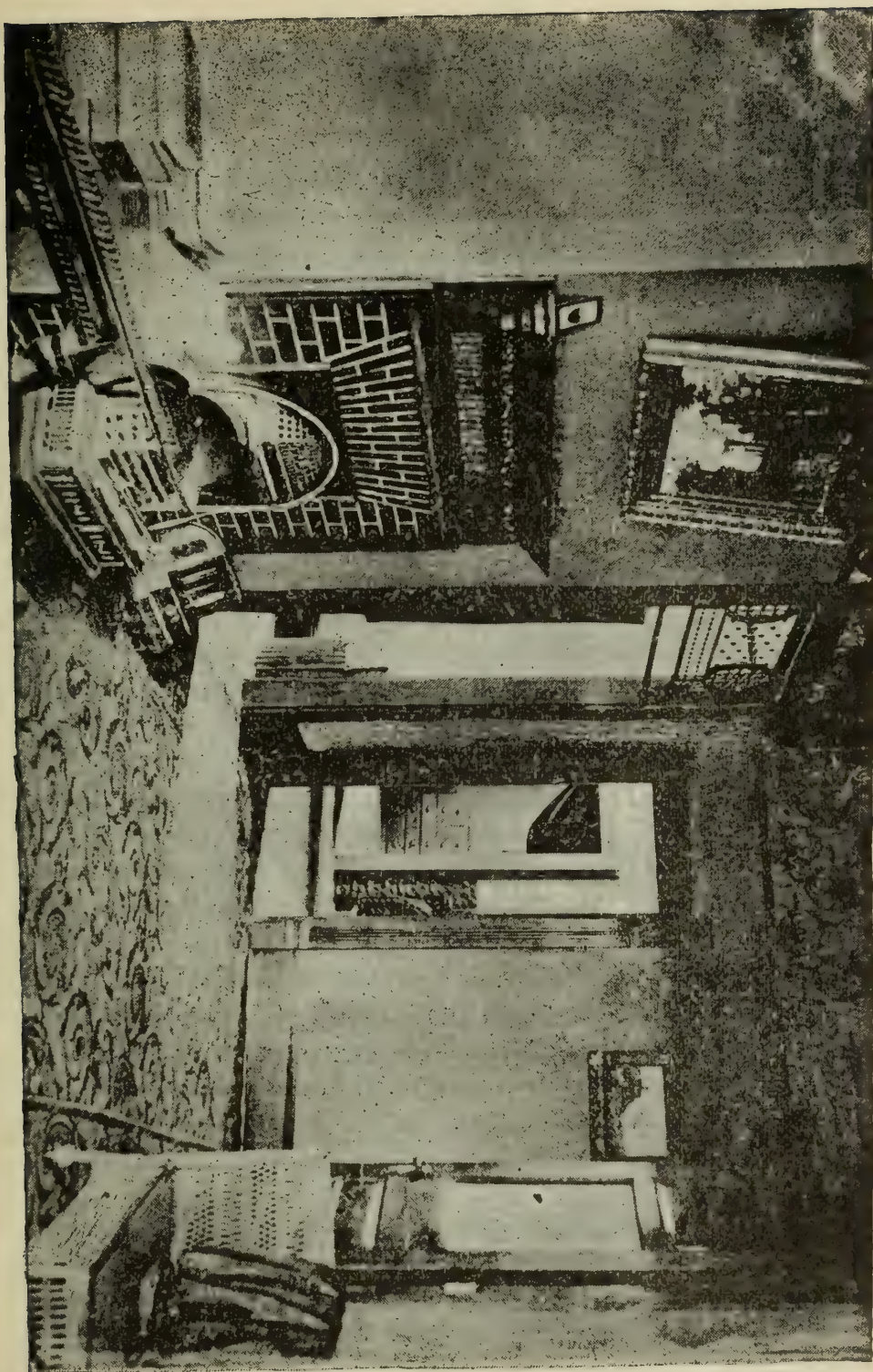
To the readers of the REGISTER the plans of the office of Dr. Geo. H. Wilson, of Painesville, O., is presented for their consideration.

As will be seen by a comparison with the plans of the office published in the June number the arrangement is somewhat different. It is with pleasure too that a photo-engraving of the interior of Dr. Wilson's office is published, for that will lead to a better idea of the plan.

The office is situated at the corner of two of the main thoroughfares and occupies almost the entire second story of a large brick edifice. The building faces the north-western point of the compass, but the operating chairs have a light from the north-east. Entrance to Dr. Wilson's office is made by an easy stairway and as the door is opened the operating chair may be noticed directly opposite the door. From this chair every one entering may be recognized. In the engraving of the interior the reader will notice a heavy curtain at the entrance of the operating room which may be used to obscure the patient seated in the chair. As one proceeds toward the main part of the reception room a heavy oak mantel-piece with fire-place add beauty to the room as well as comfort.

It is difficult to get a photograph showing all the office, so the camera was placed in such a position that the working plan of the office may be better comprehended. Appropriate and tasteful furniture, pictures and bric a brac adorn the reception room evidencing cultured taste. An elegant carpet covers the floor.





In the engraving will be noticed that the door is open and a large ground plate glass bearing the name "Wilson" in the door indicates the locality of the office.

Referring to the plan again it will be seen that the operating room and dressing room are separated by a partition of oak wood. The fire of the reception room is arranged to give heat into the dressing room, and in very cold weather a gas-stove may be attached to a pipe that has been arranged for that purpose in case of necessity. The dressing room is large enough also for a couch and office desk.

By a heavy walled partition the extracting and impression rooms are separated from the main rooms. From this there is a wide hall at the end of which is the water closet. Beyond the extracting room is the laboratory, large and commodious. When the doors and curtains are opened all callers may be seen entering from each room by the operator. A door opens from the dressing room into the reception room. A neat fire-place may be noticed in the engraving in the extracting room. By devices similar to the one in the reception room the fire of the extracting room heats the laboratory. The woodwork, doors, windows, etc., are of oak, natural finish. The windows extend a foot from the floor to within a few inches from the ceiling and are wide and have adjustable curtains to regulate the light. Dr. Wilson uses a suspension engine with power from a water-motor. The same motor is used to run the lathe in the laboratory. A sixteen-foot steel shaft extends under the floor from the motor to the operating chair and is regulated with the foot pressing an iron pin that comes through the floor at the chair.

It is almost impossible to do Dr. Wilson justice by this short description but we hope that this will aid to some extent the study of the plan and engraving of his admirable office.

The editors of the REGISTER are indebted to Dr. Wilson for the permission to publish these plans. W.

By reference to advertisement it will be seen that Dr. C. S. Stockton has become the manager of the electro deposit plate Co. For many cases this is the best dental plate made and we are glad that a practical man like Dr. Stockton has taken hold of it. Give it a trial and satisfy yourself as to its merits.

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COMMUNICATIONS.

Scientific Investigation of the Cranium and Jaws.

BY EUGENE S. TALBOT.

Read before the Mississippi Valley Dental Society.

In a hurried manner I have sketched a few ideas as they have occurred to me in regard to the forth-coming investigation of the jaws of modern and pre-historic skulls.

At the last meeting of the American Dental Association, Dr. J. J. R. Patrick, of Belleville, Ill., was appointed to take direct supervision of the work of the examination of the jaws and teeth of the skulls in the different museums of this country. The association could not have selected a better man. It is quite essential that some one who has had years of practical training like Dr. Patrick in this particular line of work, should not only supervise, but actually make the examination. From the experience which I have had in the past ten years in making examination of the work for data, that are not so particular or difficult, I have learned that it is very essential that the work should be done by a man, or a set of men of experience, and that they should go through all of the museums, and superintend personally all the work. These men should be men of experience and integrity, whose names connected with any paper would be sufficient guarantee of the accuracy and completeness of the investigation.

I can not see how it is possible for even one individual to go on with the work until some clear and systematic plan has been devised as a foundation to work upon. This plan can not be successfully laid out by any one, or ten individuals, for the reason that no individual is able to grasp all the points that are liable

to arise in a complete scientific research. This argument is illustrated by the remarks made by Dr. Patrick, showing that even he, with his large fund of knowledge and personal experience, is liable to be misled by some personal view in regard to this matter. Among other things, he says on page 70 of the "Transactions of the Illinois State Dental Society for 1890," "I received some cuts of the superior maxilla, a full set of teeth, and the writer desired to know the measurement of some of my pre-historic skulls; that is, the transverse diameter of the dental arch in the region of the sixth year molars. So far as race characteristics are concerned there can be no object in such an investigation. And so with the depth of the palate, etc. All these measurements are futile for a number of reasons, which it would be occupying too much time to consider.

Now while these measurements may not be of value so far as race characteristics are concerned (which I will not admit) yet it is just as essential that a very accurate measurement should be made across the upper jaw in the region of the first permanent molar, as any other examination of the mouth or jaw."

It is barely possible that Dr. Patrick has certain reasons for thinking that these measurements are not necessary, and yet it is possible that some one might require these particular measurements in the near future, and find upon examination of the report that they had not been taken, thus necessitating the work of going all over the ground again. This state of things has already occurred in the very laborious and exhaustive report of Dr. Betty. After Dr. Patrick has received suggestions from the dentists he should compare them with his own views, and then publish his chart in the leading dental journals at intervals, for some time, inviting criticisms in the journals from the dentists, so that these criticisms may be read by all. In this way the views of those interested in the original investigations can be recorded. The suggestions that are of value can be added to the chart, and such points as are not of material use can be discarded. In this manner a tolerably accurate chart may be produced.

All the measurements across the superior maxilla, up to the time of Dr. Betty's examination, were made from first molar to first molar. What motive could have induced Dr. Betty to make a change, and measure from third molar to third molar, I can not understand, although he may possess good and sufficient reasons for so doing. I shall have occasion to use the measurement from first molar to first molar in a paper I have been collecting material for, in the past ten years. I congratulated myself that a large expenditure of time and money was saved by the work already done by Dr. Betty. I now find that unless he can show that his plan of measurement is the better one, I must go all over the work again, thus causing considerable annoyance to the officers of the museum. Years ago the late Dr. John Mummery recognized the fact that the only parts giving a true and accurate development of the jaw was at the anterior root of the first permanent molar, and this is very natural. The first permanent molars are the only teeth that erupt normally and are not influenced by the other teeth. They are the teeth by which most of the work of mastication is accomplished, and therefore, the jaw is better developed at that point; the roots of the teeth give a very accurate point by which to obtain the diameter of the jaw, while on the other hand, the third molars never erupt normally; they are creatures of circumstances, sometimes erupting outside of the alveolar process, sometimes inside, again in the centre of the process; being always at the mercy of the second molar teeth. The third molar always erupts after the alveolar process has developed, while the first permanent molar erupts before the development of the alveolar process, and is carried undisturbed laterally with it. Again, the alveolar process at the extremities is always influenced by the surrounding parts, the divergence of the wisdom on the lower jaw, the tongue and the cheeks, while the first permanent molars are always held in position by each other. Frequently one wisdom tooth, or both are missing, and in that case it would be impossible to get the measurement. Some one will say this is the case with the first permanent molar; so it is, but the second molar in that case will answer the purpose if it moves forward and fills

the space made vacant by the extraction of the first permanent molar, when a nearly accurate measurement is as readily obtained, the buccal roots of this tooth giving the precise diameter of the jaw at the time the measurement is taken. The diameter of the jaw at the location of the second molar, when all are in place, is greater than the diameter at the first permanent molar, so that if the first molar should be removed the second molar coming forward, will occupy about the same position in the jaw that the first molar did.

I consider the antero-posterior diameter of as much importance as the lateral diameter, provided a large collection can be made so as to obtain the average excessive and arrested development, and the premature extraction of teeth goes far toward interfering with the true character of the jaw. The forward movement of the teeth, as a result of the above mentioned causes, is bound to effect a true solution of race characteristics.

Prognathism of either the upper or lower jaw frequently results from abnormal development of the opposite jaw, resulting in a local cause. Again, the constant extraction of the first permanent molar, or want of eruption of the third molar, would preclude any attempt on the part of the investigator to make an accurate examination. As Dr. Owen is able to classify some of the lower animals by the antero-posterior diameter of the jaw, so may we with proper measurement be able to add materially to our knowledge of races by this means. Dr. Patrick also says on same page :

“ With regard to measurements of human crania ; this has puzzled the brain and ingenuity of physiognomists and craniologists for the last one hundred and fifty years. They have arrived at no reliable data in regard to the relative size of the cranium and face bones. Measurements of crania amount to comparatively nothing as designating brain capacity or race.”

I quite agree with the Doctor so far as the measurements of the cranium are concerned, but should we as dentists, (specialists) who are supposed to be familiar with the bones of the cranium become so narrow in our investigations as to confine ourselves in a scientific study of so much importance as this is, to

nothing but the teeth? I had always supposed from his writings, that Dr. Patrick was a broad-gauged scientific investigator, not only in craniology but also in osteology. And that he above all others, with his vast knowledge of craniology would for his own benefit, if not for the general public, wish to explore the whole field and show to all scientists that this commission appointed by the representative body of dentists, was able to place new facts and new data before the world so that physiognomists and craniologists the world over, can look upon the report of the committee, as not only final, but display such a fund of information that the scholars of all countries will look upon it as a piece of masterly work. That physiognomists and craniologists have not made headway in the past one hundred and fifty years, is true. And why have they not made headway? Simply because the starting points for the measurements were not accurate to commence with. For instance, take the facial angle. Different authors possessed different notions in regard to what the facial angle should consist of. In Camper's angle, the facial line is drawn between the most prominent points of the forehead and lower face, the basal line, from the center of the external auditory meatus, through the anterior nasal spine, to meet the first.

In Cuvier's angle, the two lines start from the same point to meet at the tip of the incisors; In Cloquet's, at the center of the superior alveolar border; in Jacquart's, at the anterior nasal spine. The Munich-Frankfort angle (adopted at the craniometrical Congress at Frankfort) takes the facial line between the supraciliary depression, and the most prominent part of the alveolar border of the superior maxillary. The basal line is the so-called horizontal line drawn between the upper border of the external auditory meatus, and the lower border of the orbit. Topinard's angle has a facial line drawn from the supraciliary depression to the most prominent part of the lower face, and a basal line in the plane tangent to the occipital condyles and the upper alveolar arch. It will be noticed that most of these authors take for their starting point, the external auditory meatus, drawing a line to the nasal spine; and yet all are at variance in regard to

what the other points shall be. It seems never to have occurred to these men that the bones of the body never develop in harmony with the opposite sides, or that the bones of one individual may not develop like those of another individual. I have seen people with one ear higher than the other; others with eyes higher or lower in the head than normal, or one eye higher in the head than the other. Others have jaws either anterior or posterior to the normal position. The same is also true of the nasal spine. We frequently observe the nasal bone projecting or receding, owing to the period of development and ossification of the bones at the base of the brain. How frequently we see excessive development and a want of development of the supraciliary ridges, as well as the anterior alveolar processes. A line extending two to four inches from any one of these points would necessarily make a vast difference in the shape of the calvarium. It is a singular fact that less is known of the development of the osseous system than any other part of the body. In my investigations upon this subject, I had occasion to go through the Army Medical Library at Washington, and the only mention of this subject in any language consisted of twenty-four cases of excessive or arrested development, in connection with patients who were otherwise deformed; these were only mentioned in a general way. A small work upon this subject has been published lately by Dr. Sutton, an English author. It is very elementary although exceedingly interesting. Dr. Patrick also says:

"I care not what race of people you might come in contact with; however isolated in any island of the ocean, you could not find eight crania but would be different in shape and size from each other." In this statement, Dr. Patrick is quite correct. One of the most complete, scientific and well classified museums in Europe is that located at Wiesbaden, Germany; each room is numbered according to a special period in the world's history, and anything of interest that could be obtained in relation to that particular period, has been placed in that room, in the natural position in which they were found. The first room contains relics pertaining to the Glacial period and bronze ages. Among other things, side by side are two skulls, one Brachycephalic, the other

just the opposite, Dolichocephalic, thus showing that from the earliest man the shapes of the head differed.

Pages could be written about these two skulls alone. I have always observed that in the Brachycephalic skull, the upper jaw like the skull is always broad, as in the form of the jaw of the Chinese; while the Dolichocephalic skull has a long, narrow jaw, as observed in the negro. Notwithstanding all these differences in points of measurements, a great deal has been accomplished by craniologists. There is no class of men so capable of working out a new system of measurements of the skulls, establishing definite points, as the Dentists, and the present opportunity is one that seldom comes to a man whereby he can make a name for himself. It only requires thought, inventive skill and well-directed efforts to study out a plan which shall be superior to all others for the accurate measurements of the cranium and jaws. Another point in Dr. Betty's paper.

Dr. Black, on page 75 of the Transactions of the Illinois State Dental Society says: "I have not counted the irregularities in the individual skull, but in one hundred and fifty Mound Builders, there are 45 cases of irregularity, or thirty per cent. In one hundred and forty-five Indians, sixteen cases of irregularity, or eleven per cent. It is very essential for us to know whether these cases are the result of local causes, or whether they are of constitutional origin. I have since gone over the tables of Dr. Betty, and have found that only three can be considered constitutional; that is, irregularity resulting from arrest of development of the jaw. All the others are of local origin. I doubt if there is any other point in the whole investigation that is of more importance to us or to future investigators, than the knowledge of excessive or arrested development of the jaws. We would expect to find more local irregularities of the teeth among early races than among the present people, because at that time the knowledge of the care of the teeth was limited, and the temporary teeth which were allowed to remain in the mouth until forced out by the second set, frequently caused the second set to rotate, or to be forced out of their normal condition. Another point is as to whether a skull is that of a male or female. Dr.

Patrick says, "There is no male or female skull." In this, I think he intends to say that it is quite difficult to distinguish a male from a female skull. That there is quite a difference in size and shape, every one will admit. Let me ask, what will all the investigation amount to, if after the committee finish its work it is unable to classify the skulls into male and female. The influences which produce decay of the teeth are not the same in the male and female. The jaws are smaller in the female than in the male. The diameters of the cranium, the weight of the brain, are known to be less in the female than in the male, and I should expect to find difference in the shape of the jaws if a close inspection were made. It is known that the sutures of female skull are more prominent than those of the male. The discovery of these points by some dentist, whereby he can easily determine the sex, will certainly add credit to his name.

I have pointed out some of the work essential to a thorough, scientific investigation of the cranium and jaws. This work, however, cannot be accomplished without suitable instruments for the purpose. In my investigations I found that in no two cases were the jaws alike, and therefore, instruments would have to be made for this particular line of work. The instruments used in measuring across from the anterior roots of the first permanent molar, I have called the Lateral Oral-Meter. This is a self-registering instrument, consisting of two arms fastened near the center, coming together at the end, while the other ends are so arranged that they register the distance between the two extended points. This instrument can be obtained at any machine-tool store. Another instrument which I have named the Antero-Posterior Oral-Meter, is for the purpose of obtaining the distance from the posterior surface of the third molar to the mesial surface of the cutting edge of the central incisor, or the alveolar process at the median line. In a majority of cases, we find that the two halves of the jaw are not uniform. The third molar upon one side may be missing, or one posterior column may have advanced forward more than the other. In either of these cases an accurate measurement by the ordinary method would be impossible. By placing this instrument upon the skull, model, or into

the mouth so that one arm will touch the posterior surface of the furthest third molar, and then bring the long arm forward to the median line. A very accurate measurement may thus be obtained. This instrument can be used as readily in the mouth as upon a model. The third instrument is for the purpose of obtaining the height of the vault from the margin of the alveolar process to the highest portion of the roof of the mouth. I have named this instrument the Vertical Oral-Meter. This instrument consists of four arms, three horizontal and one perpendicular. Two of the horizontal arms are made like a pair of scissors, while the points are at right angles. When they are opened, the points rest on the alveolar process between the teeth. The third or middle arm moves laterally as well as antero-posteriorly, independent of the other arms. At the end of this arm is a vertical tube, in which is located a rod which is moved up and down by a ratchet, propelled by a nut at the other end of the horizontal arm. When the instrument is placed upon the jaw, model, or into the roof of the mouth, the arms are placed upon the alveolar process, and the vertical rod is carried to the highest part of the roof of the mouth. Upon examining the rod, upon which a scale is cut, we can easily ascertain the height of the vault. The point at which this measurement should be taken, is at the space between the second bicusps and the first permanent molar, because the vault from between the first permanent molars, and posterior to it, is not affected by local causes, and is therefore normal. The vault is also the highest at this part. At the intersection of the three arms is another scale for the purpose of registering the width of the jaw from the inside of one tooth to the inside of the corresponding tooth on the opposite side. This measurement can be taken between any two teeth from the cuspids back to, and including the third molar. The last two instruments are of my own design and are not on the market.

The most accurate method for cranial measurement is that known as the Bertillon method, and is used in France for the purpose of identifying criminals. It is the most perfect measurement which has ever been devised. It is not necessary to enter into a description of this method as it is familiar to you all.

It has been adopted in the penitentiary and police government of this country, with very satisfactory results.

The only thing necessary to make it complete for the purpose of scientific investigation, is to discover unfailing points upon the cranium by which to apply this method.

The expense of time and money for this examination will amount to considerable. It will cost no more, however, to make it thorough and scientific, than it will to make it narrow and confined simply to an examination of the teeth.

It is high time that the practice of Dentistry was lifted out of the narrow rut in which it has drifted, and placed upon a broad plain of scientific investigation.

President's Address,

— • —
M. H. FLETCHER,

Before the Mississippi Valley Dental Society, Cincinnati, Ohio, March 10th, 1891.

Mr. President and Gentlemen :—

It is an agreeable duty which to-day falls to my lot to welcome you to the forty-eighth meeting of this association. It was suggested last year that the old ship be abandoned, but the mere mention of such a thing so aroused many of the members that a new interest, we hope, has been awakened, and we may expect that henceforth, not only the old time activity may be evinced, but also a new life, commensurate with the recent and rapid strides of our profession, may be instilled into the society. There seems to be no good reason why this should not be if the members do even a part of their duty, for our association enrolls a goodly number of talented workers and earnest investigators.

The history of the association has been given so often that it need not be repeated. But the growth and important advancement of our work, as a profession, must always be of interest, particularly since many of us remember the introduction and practical application of our greatest improvements.

The use of the rubber dam, cohesive foil and the dental

engine, are well-nigh indispensable acquisitions to the practitioner of to-day. Porcelain teeth, crown and bridge work are the foundation of prosthetic dentistry, while the knowledge of bacteriology and germicides is to the dental pathologist the means by which many a diseased organ is restored to usefulness.

In reviewing our past progress we are emboldened to expect greater advancement in the future. The first and grandest of all these possible improvements is prophylaxis of dental caries. For if the prevention of decay of the teeth be possible (which we have faith to believe), who will deny such an attainment to be the acme of dental science. But while anticipating such a millennium, until it shall have become a happy realization, there is other work to be done.

A new substance for filling teeth is demanded, which must be as indestructible as gold, and as plastic as oxy-phosphate of zinc. Who of you will bring forth this material?

Who of you will devise a plan, or produce a substance which will universally alleviate pain during the cutting of sensitive dentine?

Again, there is yet to be invented a plastic base for the making of artificial dentures, more presentable than rubber, and more durable and tractable than celluloid, having the properties of strength and conductivity of temperature.

These are a few of the important points in which there is room for improvement and scope for the inventor. Such achievements, however, are slowly gained, and he who makes an advance in any line is taking us nearer the desired end. We have earnest workers who, by constant effort, are gradually bringing out new and valuable ideas. In fact, the successful practitioner is necessarily one who advances, since, to be successful he must be versatile, familiar with mechanics, physics and theory. Being able to turn readily from one to the other of these, his theory becomes practice and presents to us useful and advanced methods.

The work of Prof. W. D. Miller places before us in the most practical form yet devised the etiology of dental decay, and his theories are verified by evidence as strong as the microscope can

reveal. Knowing a cause it naturally follows that we search for a remedy.

And now gentlemen, if we may depart from the conventional presidential address, we have a few suggestions to present with an apology that we could find nothing newer or less inviting for our subject than the treatment of pulpless teeth.

The late experiments of Prof. Miller have put us in the way of treating such teeth more intelligently, for the reason that we now have some facts as to what kind of germs we are dealing with. We do not question but that they have already been successfully treated by the intelligent practitioner, yet we have not been treating these conditions with a specific idea of the kind of life we are trying to destroy. I venture to suggest a plan (not entirely new) by which both patient and operator be saved time and annoyance. The theory is first, that gas-forming bacteria must be gotten rid of before these cases can be successfully disposed of, and that this condition can most quickly and conveniently be accomplished by the use of arsenious acid, or other strong germicides. I first venture the statement that there is no lesion of the tissues of the body (not self-limited) more amenable to treatment than the one in question. This is proved by the many and various kinds of treatment suggested and practiced. Many operators go so far as to say that they never lose a case. While they believe this to be true it is probable safer to say their loss is exceedingly small. Now, if it be so simple a process to treat these cases successfully it should also be a short process.

Dr. Geo. Cunningham, of Cambridge, England, gave three years ago, a paper and statistics on the treatment of such teeth with arsenious acid. He says of their curability: "The success of the operations seems mainly to depend on the old axiom, 'The cause being removed the effect ceases.' No observant operator can have failed to notice the inherent curability of abscessed teeth.

Who has not noticed the frequency of cicatricial tissue marking the existence of former fistulous tracts, even where the putrefactive contents had been allowed to remain? It is to this inherent property of spontaneous curability that we look for the

relief and cure of all the injurious conditions arising from a putrescently diseased pulp."

Cunningham designates the arsenical treatment as the "Immediate method," and the other and longer processes he calls the "Dressing method."

We do not claim originality in what we wish to present, except possibly the formula used, and the manner of its use. Dr. Cunningham gives the following:

Arsenious acid.....

Alcohol.....

Oil of clover.....

He reports a loss of only 3 teeth out of 512 treated.

Our own formula is,

Arsenious acid.....

Precipitated chalk.....

Glycerine sufficient to make a thick paste.

(Arsenic is only slightly soluble in water, 1 part dissolving in about 50 of water, and slightly more soluble in glycerine, so that only small portions of arsenic would be carried to the pulp chamber. No chemical union results from the mixture of arsenic with the chalk).

The latter formula I consider better because it is more easily manipulated, and in consequence is less dangerous to surrounding tissue: 1. Because the quantity is small by its admixture with chalk. 2. Because the quantity is easily measured by the eye, and being in a somewhat solid form is not likely to be forced through the apical foramen as a fluid might, while yet there is present an ample quantity to be a most thorough germicide. The dose of arsenic is from $\frac{1}{20}$ to $\frac{1}{4}$ of a grain: the stomach of an adult readily takes up this quantity. But in the use as we recommend there is probably not applied in any case more than $\frac{1}{40}$ of a grain, and this not in contact with soft tissue at any place unless it be forced through the foramen, and should this occur and there be a pus sack the $\frac{1}{30}$ or $\frac{1}{40}$ of a grain of arsenic would most probably be good treatment for it, acting upon the pus and destroying bacteria, and having done its work would become absorbed by the blood vessels with no destructive effect upon the tissues.

It may be used as follows: Take of the arsenical compound about $\frac{1}{2}$ grain, a portion about equal in size to $\frac{1}{2}$ grain of wheat, place this upon a glass slab and mix with it a drop of water from the end of the finger; then with a nerve broach covered with cotton mix the two thoroughly. This is introduced into the pulp canal, which has been previously cleansed, dried and washed with alcohol. Then introduce the arsenical fluid, being careful to get the canal thoroughly filled. Then dry again, and in the majority of cases, fill immediately. Teeth with small and tortuous root canals, into which it is difficult to explore or force a fluid, are probably better left with the dressing in, for a few days.

My statistics, 146 cases in the past eighteen months treated after this manner, show only two cases from which the dressing had to be removed to give relief from pain.

Another advantage in the use of the arsenic in this form is that small particles are carried with the solution into the root canal and remain there. The continual presence of such a germicide in the pulp chamber and canal is perfectly legitimate since the canal is in no way connected with the circulation after the death of the pulp and has no connection with the cementum which will allow the passage of any destructive agent.

These canals, if not filled nor sterilized, would most likely cause trouble sooner or later. According to Dr. Cunningham they may be safely left without filling if kept thoroughly antiseptic. The plan adopted was to cleanse the pulp chamber and larger root canals, then covering one side of a piece of paper with his arsenical compound he put it into the pulp chamber with the arsenical side toward the canals, then proceeded to fill upon this with cement, finishing with any other material desired.

The plan of using cotton saturated with carbolic acid and other antiseptics and filling over them is one of the oldest of the many methods, but have we not all been obliged to remove many such dressings after they have had time to become useless as antiseptics? The list of agents and plans for dressing root canals is too long to give now. According to our experience

nothing so completely fills the requirements in every particular as arsenious acid. Fowler's solution might be used, but its strength is not always certain, and there is no crystal of the salt left in the canal to keep it antiseptic. We have also tried a solution of bichloride of mercury, and even with a 1 to 1000 solution trouble ensued. The powdered bichloride might be used in the same manner as the arsenic, but it is so much more soluble in water, and so dangerous to tissues that it is less desirable.

According to Dr. Miller some very active agent must be used to sterilize a pulp chamber. On page 97 of his late work on "Micro-organism" he says, "Attention has already been called to the fact that the dental pulp presents in a high degree the conditions essential to the formation of spores, and since spores possess high powers of resistance the antiseptic treatment of root canals is thereby rendered more difficult."

The necessity of destroying these germs is clearly set forth in the same work, page 111, where he says, "I would call especial attention to five different gas-forming bacteria, which invariably form large gas-bubbles in the gelatine, or tear it to pieces, as represented in the figure.

One of these bacteria, which generates considerable quantities of gas in albuminous substances, I found in the human fæces as well as in a gangrenous tooth-pulp. Its appearance in the latter place may help to explain the frequent occurrence of dental abscesses. If a tooth be filled before removing the necrotic pulp and sterilizing the root-canals, the gas formed will force itself through the foramen in the apex of the root, or carry particles of the putrid pulp along with it, causing irritation, if not immediate inflammation of the pericementum."

This it would seem, not only from recent investigation, but from the past experience of most practitioners, that the agents used have been such as would destroy organisms and spores, whether they were used with this idea or not. But in many cases the teeth were kept sore for weeks, and sometimes months, by the frequent introduction of steel points or worse remedies, each time introducing a few more bacteria, and explaining to the suffering

patient that the case was a most difficult one to cure. On the other hand the rational treatment would seem to be that of removing the exciting cause by thoroughly sterilizing the pulp chamber and canal in the shortest possible time. These exciting causes may be foreign bodies, either fluids, solids or gases, all of which are accompanied with bacteria. Once these influences are removed the spontaneity of tissue is such that it will soon return to its normal condition. If the idea of the natural tendency of tissue to return to its normal condition can be thoroughly instilled into our minds, and also that we are simply to allow the living tissue to do what it is continually trying to do, then the treatment of abnormal conditions is greatly simplified. Time will be saved to patient and operator, and we will soon find ourselves in touch with nature, which means immediate success in many cases where we now have much trouble.

Let us then keep in mind the old axiom, "The cause removed the effect ceases," and our trouble in the treatment of pulpless teeth is reduced to a minimum, and our patients saved both time and annoyance.

Starved Teeth.

Mr. J. Smith-Turner, in his presidential address to the British Dental Association recently, made an interesting statement with reference to decay in teeth. He said it often happened that though the sanitary conditions of the mouth were satisfactory, the teeth well formed and well placed, yet such teeth were susceptible of rapid destruction. There was to be seen in such a case the phenomena of a struggle for existence. The absence of the earthy salts was the cause of it. There was little difference between the teeth bone or dentine, and the bone of the frame. The teeth were occupied in growing during the first twenty years, but the bones were likely to have the advantage in the competition. At the early period of life the bones of the skeleton were stimulated to growth by the activity of the young animal. There was much less activity in the teeth, and the same stimulus was absent, the supply of blood was small, and the same facility of

nourishment was not afforded to them as in the bones of the skeleton. His object was to show that when the ordinary conditions of nutrition were disturbed, or the ordinary conditions absent, the teeth being slow in their appropriation of their share of nourishment were likely to suffer in their stability. Another element was the phosphorus in the brain. In any deficiency of the phosphates, the ever-active brain was more likely to appropriate its share of phosphates than the teeth. Hence there were three sources of danger; first, the competition of the osseous skeleton; second, the competition of the brain; and third, the comparatively small supply of blood to the teeth and the slowness of their development as terminal points in the circulation. These considerations rendered them very likely to suffer, and so to present the starved teeth so prevalent in the present day. Civilization had been blamed for much, but he was inclined to blame the liberties we took with Nature and her unerring processes for much of the dental distress now existing. With all the appearances of health and strength our teeth had been starved. The earthy salts must be taken into the body. There was no natural laboratory at work producing them and storing them up for the future. In other words, the great factors in earthy salts, so keenly competed for by other and more active parts of the body, must be supplied in our bodily diet. How far were such facts recognized and met? He did not say that a child might not flourish on other food than that originally intended for it by nature; but of this he was sure, and so was every medical practitioner, that the teeth of drugged children suffered terribly, and that whether the mother's deputy be a wet nurse or a feeding bottle, a great facility was afforded to those who were unscrupulous enough to disregard the future welfare of the child in taking their own ease. As we proceeded further we saw a continued disregard of the conditions he indicated. Children were now hurried through the earlier stages of their little lives, and manufactured into priggish little men and women before they had time to blush or weep. Children were being more and more sent from home for their education. If it must be so, he pleaded for some discrimination in their food. He could not believe that four

hundred or five hundred boys could be fed on the same diet with benefit to all. He knew that this was recognized in some establishments; but in a general way, the barrack system prevailed. In feeding a regiment we were feeding men who had been chosen for certain physical qualities and certified health; but that was not the case with children. Home-made foods were now out of date, and whether it be from the exigencies of our dense population, or from impatience of natural processes, or from a combination of causes over which we might have control if we cared to try tinned meat, ready cooked and partly cooked preparations, and artificial foods were becoming more and more acceptable. All such things were prepared with a strict commercial view to price and to profit. They were all recommended as highly nutritious, and their facility of digestion was proved by quickly returning appetite. He feared that in many instances the quickly returned appetites showed that the true needs of the system had not been satisfied, and that the cheated organs were calling through the stomach for food, just as the dry throat and mouth expressed the need for water. The holidays of school children were a round of excitement, and at one period of the year a round of dissipation. Thus was the brain stimulated, and its activity assimilated even more than its share of the phosphates the circulation forms, and the teeth were starved.

Exchange.

Bromine as a Disinfectant.

Bromine as a disinfectant is said to be coming to the front. It is an inexpensive by-product of the manufacturer of salt, selling at seventy cents a pound, and in solution containing one part in weight to about eight hundred of water; it may be used freely without affecting anything which it may touch. A few gallons used daily will remove all ammoniacal orders from the stables, or a few quarts will thoroughly deodorize the entire plumbing system of an ordinary house. The undiluted bromine is strongly corrosive, and if it touches the skin causes a painful burn.—[*The Pacific Record*.]

PROCEEDINGS.

National Association of Dental Faculties.

The eighth annual meeting of the National Association of Dental Faculties was held at Saratoga Springs, commencing Saturday, August 1, 1891; the President, Dr. L. D. Carpenter, Atlanta, in the chair.

The following colleges were represented at the meeting:

Baltimore College of Dental Surgery.—R. B. Winder.

Boston Dental College.—John A. Follett.

Chicago College of Dental Surgery.—Truman W. Brophy.

Harvard University, Dental Department.—Thos. Fillebrown.

Kansas City Dental College.—J. D. Patterson.

Missouri Dental College.—W. H. Eames.

New York College of Dentistry.—Frank Abbott.

Ohio College of Dental Surgery.—H. A. Smith.

Pennsylvania College of Dental Surgery.—C. N. Peirce.

Philadelphia Dental College.—Henry I. Dorr.

State University of Iowa, Dental Department.—A. O. Hunt.

University of Michigan, Dental Department.—J. Taft.

University of Pennsylvania, Dental Department.—Jas. Truman

Vanderbilt University, Dental Department.—W. H. Morgan.

Louisville College of Dentistry.—James Lewis Howe.

Indiana Dental College.—Junius E. Cravens.

University Dental College.—George H. Cushing.

Dental Department of National University.—Jas. B. Hodgkin.

Dental Department of Southern Medical College.—L. D. Carpenter.

School of Dentistry of Meharry Medical Department of Central Tennessee College.—G. W. Hubbard.

University of Maryland, Dental Department.—Isaac H. Davis.

Royal College of Dental Surgeons of Ontario.—J. B. Willmott.

American College of Dental Surgery.—T. Clendenen.

Dr. H. B. Noble, of Columbian University Dental Department, was also present, but not as a delegate.

The University of Denver, Dental Department, was reported upon favorably by the Executive Committee, and was elected a member of the association, and its representative, W. F. McDowell, took part in the meeting.

The applications of the Western Dental College, Kansas City, and the Dental Department Medical College of Tennessee, Knoxville, reported favorably, and under the rules laid over for one year.

On motion, it was directed that the National Association of Dental Examiners be requested to appoint a committee of five to confer with a similar committee from the National Association of Dental Faculties in regard to matters of mutual interest between the two associations, their conclusions to be reported back to this meeting. The President appointed as the committee on behalf of the Faculties Association, Drs. Peirce, Winder, Eames, Truman, and Morgan.

The committee subsequently reported the following resolutions as having been agreed to by the conference committees, and recommended that they be confirmed, which was accordingly done:

Resolved, That it is recommended to the State boards that when a graduate after examination has been refused a license and his college requests information as to the causes of his failure to pass the examination, the boards shall furnish the faculty with a detailed statement of the subjects and questions on which the applicant has failed.

Resolved, That we discountenance the publication by the State boards of the names of colleges whose graduates have failed to pass.

The committee also reported favorably a communication from the National Association of Dental Examiners, which had been referred to them, as follows:

“As the next session of the colleges marks the commencement of the new plan of three years' college instruction, we recommend that this association request the National Association of Dental Faculties to require each school to issue each year an announcement containing a list of the students classified in the three grades

of seniors, juniors and freshmen; that this list also in each instance designate the absentees, and that each school be required in the same announcement to publish a list of the graduates of the preceding sessions."

On motion of Dr. Cushing, the term absentee in the foregoing was construed to mean one who for any reason has not attended a full course.

The President being asked to rule upon the resolution adopted last year requiring dissections, decided that it was mandatory.

The following, offered by Dr. Abbott, was adopted by a unanimous vote:

Resolved, That any college whose regularly appointed representative fails to sign the constitution within one year from the time of its election to membership shall be dropped from the roll of membership of this association.

Dr. Patterson, from the committee on codification of the rules, presented a report, which was amended and adopted, as follows:

ENTRANCE.

Resolved, That a preliminary examination be required for entrance to our dental colleges. Such requirements shall include a good English education. In case of any applicant failing to pass a satisfactory preliminary examination, the other colleges of this association may be informed of the fact. (Saratoga, 1884; Chicago, 1885.)

Resolved, That a candidate for matriculation who presents a diploma from a reputable literary institution, or other satisfactory evidence of literary qualifications, shall be admitted without further examination. (Saratoga, 1884; Chicago, 1885.)

Resolved, That after the session of 1890-91 a diploma from a reputable medical college shall entitle its holder to enter the second course in dental colleges of this association, but he may be excused from attendance upon lectures and examinations upon the following subjects: General anatomy, chemistry, physiology, materia medica and therapeutics. (Excelsior, 1890.)

ADMISSION TO SENIOR CLASS.

Resolved, That the colleges of this association may receive into

the junior or senior classes only such students as hold certificates of having passed a satisfactory examination in the studies of the freshman or of junior years respectively; this certificate to be a pledge to any college to which they may apply that a previous year has been properly spent in the institution. (Chicago, 1885; changed, Saratoga, 1891.)

Resolved, That applicants for admission to advanced standing from foreign countries shall be required to furnish properly attested evidence of study, attendance upon lectures, etc., the same as required of applicants here; and they shall pass the intermediate examinations. (Chicago, 1885; changed, Saratoga, 1891.)

FORM OF INTERMEDIATE CERTIFICATE.

Place.....Date.....

This certifies that.....has been a member of theclass in the.....college during the session of.....

He was examined at the close of the session in the studies required, (as follows), and is entitled to enter the.....class.

Attendance.....

FRESHMAN YEAR.

JUNIOR YEAR.

<i>a</i>	<i>a</i>
<i>b</i>	<i>b</i>
<i>c</i>	<i>c</i>
<i>d</i>	<i>d</i>
<i>e</i>	<i>e</i>

Each student completing a regular course in any college of this association must be furnished with the above certificate, without which he shall not be accepted by any college for admission to the advanced class, except by conference with and consent of the school from whence he came. (Chicago, 1885; changed, Saratoga, 1891.)

Resolved, That the dean of each school shall upon request furnish the executive committee with the exact character of the intermediate examination held in his school, and whether or not the examination is final. (Niagara, 1886; changed, Saratoga, 1891)

ATTENDANCE.

Resolved, That candidates for admission to the colleges of this association, who are undergraduates in a reputable medical college, may be admitted to the junior class subject to the rules of examination governing admission to that class.

Resolved, That no college shall give credit for a full term to any student who has entered later than twenty days after the beginning of regular lectures. (Chicago, 1885.)

Resolved, That no college of this association shall admit a student after twenty days from beginning of regular term, except those colleges having a term of more than five months, and that they shall have an extension of time in proportion to the length of term. (Niagara, 1886.)

Resolved, That attendance upon three full regular courses of not less than five months each in separate years shall be required before examination for graduation. (Saratoga, 1889.)

GENERAL.

Resolved, That the fees of all dental colleges, as far as possible, be uniform. (Chicago, 1885.)

Resolved, That the members of any faculty belonging to this association may take part in its discussions, but only the delegated representatives shall vote upon a question before the association. (Niagara, 1886.)

Resolved, That dental schools which do not conform to the regulations of this association shall not be recognized by the association. (Niagara, 1886.)

Resolved, That a standing committee on schools be elected, whose duty it shall be to ascertain as far as practicable the workings of all dental schools in this country and Europe, and be required to furnish information to the dean or secretary of any college when desired, and to report in writing at each meeting of this association. (Niagara, 1886.)

Resolved, That we agree to adopt a graded course of instruction and an intermediate examination between each course, which course of instruction and examination shall be conducted as the faculties of the different colleges represented in this association may deem proper. (Saratoga, 1884; changed, Saratoga, 1891.)

Resolved, That no charges against any faculty shall be reported to the association by any committee before both parties interested have been notified, and an opportunity given for a hearing before said committee. (Washington, 1887)

Resolved, That as a matter of courtesy, when a student leaves one school to go to another, the dean of the second college shall write to the dean of the first college, inquiring whether there may be any objections to the transfer; this to be done whether the student presents a certificate or not. (Louisville, 1888; changed, Saratoga, 1891.)

Resolved, That hereafter a delegate representing a college in this association shall be a member of a teaching faculty, and shall present credentials from the college to which he belongs, legally authorizing him to represent his college before he shall be entitled to vote. (Louisville, 1888.)

Resolved, That it shall be obligatory upon the dental schools belonging to this association to publish the names of all their matriculates and graduates of the preceding session, with the States and countries from which they come, in their regular annual announcement, and that an asterisk (*) accompany the name of each person not in attendance, and the words "not in attendance" be placed as an explanatory foot-note at the bottom of the page.

Resolved, That the degree of Doctor of Dental Surgery shall not be conferred by any college belonging to this association honorary, except by the consent of this association. (Saratoga, 1889.)

Resolved, That the term anatomy shall be interpreted to include didactic and practical anatomy, and that in the latter at least two parts of the cadaver shall be dissected in some regularly appointed anatomical department. (Excelsior, 1890.)

MEMBERSHIP.

Resolved, That all applications for membership in this association shall be made in writing, and referred to the executive committee. (Niagara, 1886.)

Resolved, That applicants for membership in this association shall be regularly incorporated dental colleges or departments of

medical colleges or universities, wherein at least one full course of lectures has been delivered, and that such dental colleges or departments shall have been in existence at least one scholastic year. (Washington, 1887.)

Resolved, That no application for membership in this association be reported by the executive committee, unless received at least sixty days before the regular meeting. (Washington, 1887.)

Resolved, That all applications for membership reported upon favorably by the executive committee shall lie over one year before final action may be taken thereon. (Saratoga, 1889.)

Resolved, That we recommend that students take two full courses in studies of a general character, such as anatomy, physiology, chemistry, general principles of surgery, materia medica, and therapeutics, and three courses in those of a special dental character. (Excelsior, 1890.)

Recommended, That for a full course of lectures the minimum sum of college fees be \$100.00. That diploma fees may be omitted, and an examination fee of not less than \$25.00 be substituted therefor and made non-returnable; that a matriculation fee of \$5.00 be charged annually. Special-course fees to be \$10.00 for each branch taken, and \$5.00 matriculation fee.

The American College of Dental Surgery, Chicago, was suspended from membership for two years for violation of the rules of the association in accepting students after the prescribed time and giving them credit for a full term.

A resolution dismissing charges against the Philadelphia Dental College was adopted.

The following were offered and laid over for one year under the rules.

By Dr. Hunt:

Resolved, That in case of charges against any college no final action shall be taken until all parties concerned shall have had at least thirty days' notice.

By Dr. Truman:

Resolved, That at all future meetings of the National Association of Dental Faculties the delegates shall consist of members of faculties, and demonstrators will not be received.

By Dr. Fillebrown:

Voted, That after June, 1893, the yearly course of study shall be not less than seven months, two months of which may be attendance upon clinical instruction in the infirmary of the school, now known as intermediate or infirmary courses.

By Dr. Hunt:

Resolved, That after the session of 1892-93, four years in the study of dentistry be required for graduation.

Dr. Dorr offered a resolution that students who have successfully passed their examinations for advanced standing shall have their certificates given or mailed to them within thirty days after such examinations shall have been completed. Adopted.

The following officers were elected for the ensuing year: W. H. Eames, St. Louis, President; J. D. Patterson, Kansas City, Vice-President; J. D. Patterson, Kansas City, Secretary; H. A. Smith, Cincinnati, Treasurer; J. Taft, A. O. Hunt, and Frank Abbott, Executive Committee.

The President appointed the following Standing Committees: Ad Interim Committee, James Truman, Frank Abbott and Thomas Fillebrown; Committee on Schools, D. R. Stubblefield, J. A. Follett, J. Lewis Howe, J. E. Cravens, S. H. Guilford.

Adjourned to meet at the place of the next meeting of the American Dental Association, on the Monday previous, at 10 o'clock.

National Association of Dental Examiners.

The National Association of Dental Examiners held its tenth annual session at Saratoga Springs, commencing Monday, August 3, 1891.

In the absence of the regularly elected officers, Dr. L. D. Shepard was elected president and Dr. Levy secretary-treasurer pro tem.

The following State Boards of Dental Examiners were represented:

Vermont. James Lewis.

New Jersey. Fred. C. Barlow, Fred. A. Levy.

Ohio. J. Taft, H. A. Smith, L. E. Custer, C. R. Butler.

Pennsylvania. Louis Jack, W. E. Magill.

Georgia. George W. McElhaney.

Maryland. A. J. Volck.

Massachusetts. L. D. Shepard, J. S. Hurlbut.

Mississippi. W. H. Marshall.

Iowa. J. T. Abbott.

Louisiana. Geo. J. Friedrichs.

The following State Boards were admitted to membership :

Tennessee. J. Y. Crawford.

New Hampshire. E. B. Davis.

Main. E. J. Roberts, D. W. Fellows.

A committee consisting of Drs. Shepard, Fellows, Crawford, McElhaney and Magill was appointed to confer with a similar committee from the National Association of Dental Faculties for the better understanding of questions involving educational interests.

The committee subsequently reported that the conference committees had agreed upon the following resolutions, which were, on motion, confirmed :

WHEREAS, There can be no question that the main object in view of both the National Association of Dental Faculties and the National Association of Dental Examiners is the better preparation of young dentists for usefulness in the community, and that to secure this end it is desirable that the State boards of dental examiners and the colleges should work in harmony ; therefore,

Resolved, That it is recommend to the State boards that when a graduate after examination has been refused a license and his college request information as to the causes of his failure to pass the examination, the boards shall furnish the faculty with a detailed statement of the subjects and questions on which the applicant has failed.

Resolved, That we discountenance the publication by the State boards of the names of colleges whose graduates have failed to pass.

The committee on colleges reported that they had received reports of the number of matriculates and graduates of twenty-eight colleges, as shown below :

NUMBER OF MATRICULATES AND GRADUATES OF THE DENTAL COLLEGES.		Matriculates.	Absentees.	Graduates.	Ratio.
Baltimore College of Dental Surgery	Baltimore, Md.	224	3	76	34.3
Boston Dental College	Boston, Mass.	96		31	32.2
Chicago College of Dental Surgery	Chicago, Ill.	323		94	29.
Harvard University, Dental Department	Boston, Mass.	44		15	34.
Kansas City Dental College	Kansas City, Mo.	110	5	43	40.
Missouri Dental College	St. Louis, Mo.	90		26	28.8
New York College of Dentistry	New York, N. Y.	283	8	85	30.9
Ohio College of Dental Surgery	Cincinnati, Ohio.	208		75	36.
* Pennsylvania College of Dental Surgery	Philadelphia, Pa.	252	17	94	40.
† Philadelphia Dental College	Philadelphia, Pa.	315		146	46.3
University of California, Dental Department	San Francisco, Cal.	63		16	25.4
University of Iowa, Dental Department	Iowa City, Ia.	161		58	36.
University of Michigan, Dental Department	Ann Arbor, Mich.	132	1	29	22.1
University of Pennsylvania, Dental Department	Philadelphia, Pa.	206	3	83	40.8
Vanderbilt University, Dental Department	Nashville, Tenn.	135		43	31.8
Northwestern College of Dental Surgery	Chicago, Ill.	14		3	21.4
Indiana Dental College	Indianapolis, Ind.	96		40	41.6
Dental Department of Southern Medical College	Atlanta, Ga.	103		38	36.8
School of Dentistry of Meharry Medical College, Department of Central Tennessee College	Nashville, Tenn.	5		1	20.
University of Maryland, Dental Department	Baltimore, Md.	163	4	64	39.7
Columbian University, Dental Department	Washington, D. C.	19		2	10.5
Royal College of Dental Surgeons of Ontario	Canada.	67		27	40.
College of Dentistry, Department of Medicine, University of Minnesota	Minneapolis, Minn.	36		7	19.4
American College of Dental Surgery	Chicago, Ill.	167		49	29.
Aggregate		3312		1144	34.5
*15 female matriculates. †9 female matriculates.					
DENTAL COLLEGES NOT CONNECTED WITH THE NATIONAL ASSOCIATION.					
German-American	Chicago, Ill.	22		11	50.
Western Dental College	Kansas City, Mo.	61	1	9	15.
United States Dental College	Chicago, Ill.	43		11	25.5
College of Dentistry, University of Denver	Denver, Col.	12		5	41.6
Aggregate		139		36	
Whole aggregate		3451		1180	

Four colleges, members of the National Association of Dental Faculties, had failed to report, namely: University Dental College, Chicago; Dental Department, University of Tennessee; Louisville College of Dentistry; and Dental Department of National University, Washington, D. C.

The committee recommended that "as the next session of the colleges marks the commencement of the new plan of three years' college instruction, that this association request the National Association of Dental Faculties to require each school to issue each year an announcement containing a list of the students, classified in the three grades of seniors, juniors and freshmen; that this list also in each instance designate the absentees, and that each school be required in the same announcement to publish a list of the graduates of the preceding session."

The committee also reported the following list of colleges which they recommend as reputable:

Baltimore College of Dental Surgery, Baltimore, Md.

Boston Dental College, Boston, Mass.

Chicago College of Dental Surgery, Chicago, Ill.

College of Dentistry, Department of Medicine, University of Minnesota, Minneapolis, Minn.

Dental Department, Columbian University, Washington, D. C.

Dental Department of Northwestern University (now the University Dental College) Chicago, Ill.

Dental Department of Southern Medical College, Atlanta, Ga.

Dental Department of University of Tennessee, Nashville, Tenn.

Harvard University, Dental Department, Cambridge, Mass.

Indiana Dental College, Indianapolis, Ind.

Kansas City Dental College, Kansas City, Mo.

Louisville College of Dentistry, Louisville, Ky.

Missouri Dental College, St. Louis, Mo.

New York College of Dentistry, New York City.

Ohio College of Dental Surgery, Cincinnati, Ohio.

Pennsylvania College of Dental Surgery, Philadelphia, Pa.

Philadelphia Dental College, Philadelphia, Pa.

School of Dentistry of Meharry Medical Department of Central Tennessee College, Nashville, Tenn.

University of California, Dental Department, San Francisco, Cal.

* Northwestern College of Dental Surgery, Chicago (defunct).

University of Iowa, Dental Department, Iowa City, Ia.

* The diplomas of this college are discredited after 1889.

University of Maryland, Dental Department, Baltimore, Md.
University of Michigan, Dental Department, Ann Arbor, Mich.

University of Pennsylvania, Dental Department, Philadelphia, Pa.

Vanderbilt University, Dental Department, Nashville Tenn.

Western Dental College, Kansas City, Mo.

Minnesota Hospital College, Dental Department, Minneapolis, Minn. (defunct).

St. Paul Medical College, Dental Department, St. Paul, Minn. (defunct).

The report was adopted, and the committee on schools was enlarged to consist of one member from each State board. Dr. Louis Jack was appointed chairman of the committee, and the president, secretary and chairmen were authorized to complete its membership and to fill vacancies.

The following was adopted :

Resolved, That this association requests the several boards represented in this body not to indorse beneficiary students.

The following officers were elected for the ensuing year : L. D. Shepard, President ; W. E. Magill, Vice-President ; Fred. A. Levy, Secretary-Treasurer.

The officers were empowered to select the time and place of the next meeting.

Adjourned.

Alumni Association of the Philadelphia Dental College.

At a meeting held April 9th, 1891, all the graduates of the Philadelphia Dental College during the years '86, '87, '88, '89, '90 and '91 were elected members. Those desiring to accept such membership will please send to J. R. C. Ward, D.D.S., Treasurer, 1905 Fairmount Avenue, Philadelphia, their name, address and one dollar entrance fee.

ALONZO BOICE, President.

L. ASHLEY FAUGHT, Sec'y.

SELECTIONS.

A New Anæsthetic.

It is a long time ago since John Hunter, when cutting into the cock's comb, noticed the anæsthetic effects of cold. Although his primary object was to restrain bleeding, he nevertheless remarks that the operation was apparently painless. Dr. Richardson also noticing the benumbing effects of cold, devised his apparatus for its artificial production by spraying ether on the part to be operated on, but from cause ether spray fell into disfavor with surgeons, and was finally superseded by cocaine as a local anæsthetic. Cocaine, however, has not fulfilled all the promises held out for it by its advocates; it is not perfectly innocuous, and it has been blamed for delaying the healing of the cut surfaces of the part anæsthetized by it. The search for a new anæsthetic, local in its action and non-poisonous, was recommenced, and, if we accept M. Monnet's statements, we have in the chloride of ethyl all that is sought. Already it has found an advocate in Dr. C. Redard, Clinical Professor at the Geneva School of Dentistry, who speaks highly in its favor.

Chloride of ethyl (C_2H_5Cl), is a colorless mobile liquid, having a peculiar and pleasant odor, and a sweetish burning taste. It boils at 12.5° , at 0° possesses a specific gravity of 0.9214. It is slightly soluble in water, but dissolves readily in alcohol. It is sent out for medicinal use in hermetically sealed glass tubes containing a little more than two drachms each. When required for use the point of the tube is snipped off and the warmth of the operator's hand is sufficient to cause a very fine jet of the chloride to be projected on the part to be anæsthetized. No apparatus is required—a great advantage. Up to the present its use has been confined to dentistry and as an external application in neuralgic affections, but there is little doubt that in a short time its value will be tested in general surgery. Although the use of the chemical as an anæsthetic is new, the chloride is one of our oldest preparations. Of course, it was not known

as chloride of ethyl, for the name "ethyl" was the invention of Berzelius, and the word "chloride" a little later (1812) by Sir H. Davy. But in the beginning of the fifteenth century, at the end of the ecclesiastical era in medicine, and the dawn of the Renaissance, when Brunelleschi commenced the task of reviving the love of the beautiful by copying Greek architecture and Greek statuary, even prior to the birth of Linacre, Basil Valentine, by distilling common salt and spirits of wine, having, as he says, previously united them, obtained an alcoholic solution of the chloride. "Thus is the *spiritus salis et vini* prepared." And Johann Rodolph Glauber, better known as the maker of the "sal mirabile," (Glauber's salt), in 1648 wrote: "When dephlegmated spirit of wine is poured in strong spirit of salt and digested for a long time, the spirit of wine makes a separation and kills its *sal volatile* so that a fine clear *oleum vini* swims on the top, which is not the least potent of the cordials."—*Med. Press and Circular*.

A Method of Differentiating Nerve Tissue with Mercuric Chloride.

Prof. Camillo Golgi (*Riforma Medica*, June 24, 1891), describes a new method of coloring nerve elements which may be of some value in pathological inquiries. The pieces of tissue are first hardened in Mueller's fluid and then in 3 per cent. potassium bichromate solution, in which they are left for several months. They are next soaked in a solution of corrosive sublimate, $1\frac{1}{2}$ to 1 per cent. It will then be found, on section, that the nervous elements have a glistening white appearance from impregnation with mercury, and are beautifully differentiated from the surrounding tissues. The author found, however, that a much better result was obtained if the sections were then immersed in a weak solution of sulphide, as the white appearance then disappeared and the nervous elements appeared of a fine black color, which showed up well in contrast with the surrounding tissues. The exact process adopted is as follows:

1. The sections having been cut in celliodin, are washed in distilled water.

2. They are then immersed for one or two minutes in a solution of sodium hyposulphite, preferably that used for "fixing" photographs on aristotype paper. Blackening can be then followed with the naked eye.

3. The sections are then very thoroughly washed in distilled water.

4. They may, if desired, be counter-stained with acid carmine.

5. After dehydration with absolute alcohol and clearing with oil of cloves they may be mounted in the ordinary manner.

Sections thus treated are very permanent; even after prolonged keeping they do not show pulvirulent deposits, and the nervous elements are shown in their finest ramifications.—*British Medical Journal*.

Bacterial Poisons.

The author sums up the present state of our knowledge on the above subject as follows:

1. Man is attacked by the infectious diseases either through the alimentary canal or through the blood or lymph.

2. The gastric juice is a physiological guard against infection by the way of the intestines.

3. Additional guards against infection by the intestines are probably to be found in the absorbing cells of the stomach and intestines.

4. Susceptibility to the intestinal infectious diseases is increased when, for any reason, these physiological guards are defective.

5. All toxicogenic germs are dangerous when introduced into the intestines, and their capability of doing injury lies in their production of chemical poisons.

6. Many of these poisons are proteid in character.

7. These poisonous proteids most probably act by catalysis.

8. In the splitting up of complex molecules into simpler ones, heat is liberated and fever manifests itself.

9. The physiological guard against infection through the

blood or lymph lies in the germicidal action of the proteids of these fluids.

10. Susceptibility to infection through the blood or lymph is increased by impoverishment of these fluids.

11. We can continue to treat consumption and other systemic diseases by the employment of liberal diet, exercise in the open air, and constitutional remedies without being unscientific in our practice.

12. Filth, without being the bearer of a specific germ, is a cause of disease.

13. Wherever man pollutes the soil about him, the air which he breathes, and the water he drinks with his own excretions, there enteric fever will be found.

14. In their causal relation to disease germs can not be classified without a knowledge of the chemical changes which they induce.

15. While certain bacterial poisons can result only from the growth of certain germs, other poisons similar to one another in their action, though probably not identical, may result from any one of a number of organisms. In the former case we have such diseases as anthrax and small-pox, with their practically constant symptoms and well-marked course; in the latter case we have such diseases as the summer diarrhoea of infancy and enteric fever, with their varying symptoms.—VICTOR C. VAUGHAN, *Med. News*.

The Phonograph in Medicine.

The applicability of the phonograph to the record and demonstration of defects in speech has been well illustrated during the past week at the Royal Medical and Chirurgical Society and at the Hunterian Society.

At the first named, Dr. Hale White and Mr. Golding-Bird were enabled by means of this instrument to allow the Fellows present to hear the curiously defective speech of two children, and to contrast this with the improvement effected by treatment for the subjects were present, and after the phonograph had

given their past utterances, their present speech was demonstrated *viva voce*.

The papers read by the above gentlemen and that by Dr. F. Taylor led to an instructive debate, which was further illustrated by some marked cases introduced by Dr. Hadden. The outcome seemed to be that these defects in articulation are probably of central origin, and not due to any mechanical interference with the organs of speech. Whether, as suggested by Dr. Langdon Down and Mr. Spencer Watson, the defect was primarily one of audition is a question certainly worthy of consideration. Another point raised was whether the defect should be considered one of speech or language, and some exception was taken by Drs. Taylor, Pye-Smith and others, to the use of the term "idioglossia," which, however, was ably defended by Dr. Hale White. The other phonographic demonstration at the Hunterian Society was by Dr. Hughlings Jackson, who thus reproduced the characteristic speech of a subject of cerebrospinal sclerosis. There can be little question that the phonograph will ultimately prove very useful, especially in the preservation of certain anomalies of articulation, and its further extension to other sound phenomena in the range of clinical medicine may be justifiably hoped for.—*The Lancet*.

Liniment for Bruises.

R. Tr. capsicum.....	2 parts.
T. myrrh.....	2 parts.
Tr. opium.....	2 parts.
Tr. guaiac.....	1 part.
Sps. champhor.....	8 parts.

M. This is similar to Perry Davis' Pain Killer.

A much more powerful one is :

R. Tr. aconite.....	
Tr. opium.....	
Chloroform aa.....	1 part.

M. Shake well before using.—H. M. Whelpley, in *Cincinnati Medical Journal*.

Syphilis.

PRIMARY SYMPTOMS. — About three weeks after contagion (sometimes longer), an erosive indurated papule, usually single, painless and non-recurrent, with or without ulceration or discharge, generally attacks the glands or prepuce in men, and labia or nymphæ in women.

About two weeks later (or less), painless induration and enlargement of inguinal glands without suppuration. Cervical, axillary and other glands may enlarge later on.

The above symptoms (true chancre and syphilitic bubo) are always followed by constitutional syphilis.

SECONDARY SYMPTOMS. — About six weeks (more or less), after contagion, a roseolous rash on chest or abdomen, with erythema or ulceration of fauces and larynx, succeeded by papular (lichen), vesicular (eczema), or pustular (ecthyma, acne, impetigo) eruptions of body, fauces, tongue and tonsils, and mucous patches and condylomata of orifices.

About three months later, squamous (psoriasis, lepra) or bulbous (rupia, pemphigus), eruptions of the skin and fauces. Rheumatoid and periosteal pains. Iritis, choroido-retinitis. Temporary deafness. Partial alopecia. Epididymitis. Onychia of fingers and toes.

TERTIARY SYMPTOMS. — About three or four years after contagion (sometimes much sooner), serpiginous ulcerations of skin and mucous membranes. Pigmentary syphilides. Rupia. Destructive onychia. Nodes, caries, necrosis, and exostosis of tibia, ulna, sternum, and cranial or nasal bones. Hard, painless orchitis. Scirrhus. Permanent deafness. Gummy tumors of skin, mucous membranes, liver, lungs, kidneys, tongue, palate, uterus, joints, muscles, tendons, brains and spinal cord. Epilepsy. Hemiplegia. Paraplegia. Paralysis limited to certain muscles. Dactylitis. Stricture of pharynx and esophagus.

SHOULD a dentist use intoxicants; Better not. It is an injustice to his patients, and worse for himself.

Nitrite of Amyl in Chloroform Poisoning.

BY E. MAMMEN, M.D., BLOOMINGTON, ILL.

I desire to add another case of chloroform poisoning treated successfully by the inhalation of nitrite of amyl. The facts are as follows: At about 7 P.M. of March 13, 1890, I received a telephone message to come hastily to M. P——, who had taken chloroform and could not be awakened. The distance was about one and a half miles, and I stopped at a drug store to procure five-drop pearls of nitrite of amyl. Time of arrival was about half an hour after being called. I found the patient in a profound stupor, respirations shallow, pulse rapid and feeble. A three ounce bottle was found in his coat pocket half full of Squibb's chloroform. A telephone message to the druggist revealed the fact that he had purchased three ounces of the drug some two hours before. He had swallowed apparently about one and a half ounce. Air was at once freely admitted to the room and to the patient, and a pearl of the nitrate given by inhalation. The effect was immediate and apparent. After the lapse of fifteen minutes, pulse again became rapid and feeble, and another pearl was used, with the result of deepening the respirations and increasing the vigor of the pulse. The same thing was repeated at lengthening intervals eight or nine times. Meanwhile hypodermic injections of atropia were twice given and towels wrung out of cold water dashed upon the chest. After four hours the patient awoke from his stupor and in another hour was out of danger. Recovery was somewhat slow, owing no doubt partly to the great destruction of red blood-corpuscles, as evidenced by the extreme icteric hue of the skin, which persisted for two weeks. In my judgment this patient could not possibly have survived without the use of nitrite of amyl.

INEBRIETY AND MEDICAL PRACTICE.—The secretary of the State Board of Health of Iowa announces that he is convinced that habitual drunkenness constitutes "palpable evidence of incompetency," as the law reads, and that therefore the physician given up to inebriety should be deprived of his certificate entitling him to practice in that State.—*Med. Record.*

A Good Cough Mixture.

- R. Acidi hydrocyanici dil.
 Chloroformi purif, aa. xxxviii minims.
 Tincturæ hyoscyami.
 Syrupi tolutani.
 Aquæ camphoræ, aa.vj fluid drachms.
 Mucilagonis acaciæ.v fluid drachms.

M. Sig. One tablespoonful every two to four hours. For children in proportionate doses.

Dental Caries.

The following prescription has been suggested :

- R. Acid tannic. lxxv grains.
 Tinct. iodinii
 Tinct. myrrhæ, aa.j fluid drachm.
 Potassii iodidi.xv grains.
 Aquæ rosæ.j fluid ounce. M.

Add a teaspoonful to a small glass of water and use daily as a mouth wash.—*Pharm. Record*, March 5, 1891.

Thymol Dentifrice.

- R. Precipitated chalk.xv ounces.
 Soap, powdered.j ounce.
 Saccharin.x grains.
 Thymolxv grains.
 Camphor.xxx grains.
 Vanillin.v grains.
 Oil of rose.vj drops.

• Rub the camphor and thymol together in a mortar, and warm gently so as to render the mixture liquid ; then add the chalk in small portions at a time, reserving about one ounce ; next add the other ingredients, the perfumes being first separately rubbed with the remainder of the chalk.—*Chemist and Druggists*.

Advertising.

“PRIVATE AND CONFIDENTIAL.”

“*Dear Sir*:—May I venture upon a suggestion, by the adoption of which, mutual advantage should result, viz :—that I shall be happy to allow you a commission of 20 per cent. upon any fresh professional business that you may be the means of introducing to me, with 5 per cent. upon all renewals therefrom, and 5 per cent. upon any collateral introduction. My fees are as follows: 10s. 6d. for each operation, including stopping, extractions, etc., etc. Sets of teeth, 10 guineas, 15 guineas and 20 guineas. Servants and poor persons half fees.

I am, dear sir,

Etc., Etc.”

So runs a notice which has come into our hands. It seems to us, there may perfectly well be two opinions as to advertising, in an open and above board manner, but surely there can be only one, and that decidedly adverse to such a way of endeavoring to rake together patients. We do not know in the least what was the result of this miserable supplication and confession of being out of work, but certainly if a medical man has any claim at all to be looked upon as a professional man, he would promptly look on such a communication as a personal insult. We notice that the writer of this holds a hospital appointment; it would be curious to know whether the other members of the staff have had this brought to their knowledge, and if so, what notice they are going to take of it.

The question of advertising is a very large one. Every man must become known if he would gather around himself a practice; he must advertise himself in every way that is legitimate; but it is around this point, what is, and what is not legitimate; that the battle wages. We would not, of course, like to take upon ourselves the task of laying down the law, of drawing a hard and fast line which should divide that which is just, from that which is unjust, but still there are certain things which can be condemned without a second thought, there are others which the

more high-minded would not do, but which only raises an amused smile when we hear of their being done ; there are, again, other matters concerning the correctness of which is so knotty a point that one's own views are apt to vary from day to day, as one's moods and fancies change.

Surely, there is nothing more amusing than to see a man endeavoring to make himself known, by writing on all sorts of subjects to all sorts of papers ; notice how prominently the address is placed, how carefully the qualifications are attached, and what a lot is made of a little. Then again, how eagerly some set to work to write a book, a collection of all that is old, but flavored with nothing that is new. Here again notice the preface. The first personal pronouns almost elbow one another, so closely do they crowd, while to crown them all comes the signature with the flourish of an adept, likewise not forgetting to append the address. Success in life is to a large extent due to judicious advertising. Note how often a very third rate man does, in the end, become of some importance. The importance of this element of push in attaining success has been fully recognized, and must ever be regarded as perfectly legitimate. Quite different, however, are those obnoxious advertisements, which, but too frequently disfigure the public press, not to mention the dropping of pamphlets down the area. Perhaps if all that these advertisements state was strictly true, if the inducements offered were carried out, in the spirit as in the letter, one might even to some extent pardon these practices, alas ! we know only too well that they are not. Take the question of show cases. We suppose the work displayed in so hideous a manner is meant to be taken as that of the man who is waiting at the shop door to inveigle the unwary into his meshes. But is it ? If so, what means the advertisement one finds sometimes as to "specimen cases" for sale. The fact is, such cases are often simply bought for the purpose of display, and is as much like the work which the advertiser supplies his patients with, as is a brick-bat like a Dutch cheese. Take again the question of advertising low fees as an inducement to patients to go to a particular man, does any one pretend for a moment that these fees are adhered to ? Is

it not a matter of fact that every opportunity is taken, and excuse made for asking a higher fee? On the grounds of common honesty we ask, should not such advertisements be condemned?

But if we look at this question from the point of view of professional ethics, nothing but blame can attach to such advertising. We do not know what are the motives of such men, whether they have any pride in their work, any wish to be a member of an honorable profession, or any other ambition beyond the earning of a few pounds. We do not know what is the frame of mind which possesses such men, whether if they were equally well paid, they would as soon be shoe-blacks, crossing-sweepers or perhaps sorters on a muck-heap. There are some things one can never fathom, and we could never understand the man who ceases to take pride in his work, cast himself loose from all honorable associations, and proceed simply to make what he can by fair means, or foul. It is an unsavory matter one is glad to turn away from, and in charity hope that things are not always what they seem.—*British Jour. of Den. Science.*

Legalized.

The Metric System has been legalized in the following countries: Argentine Confederation, Austria, Belgium, Bolivia, Brazil, Chili Columbia, Ecuador, France, German Empire, Greece, India, Italy, Mexico, Netherlands, Peru, Russia, Spain, Uruguay.

RULES FOR BATHING.--It is well to commence with these baths as soon as the first infirmities of age begin to make themselves felt between the 50th and 60th year.

Two to three baths should be taken every week. As the water cools off, hot water must be added and the thermometer consulted.

The best time for bathing is in the forenoon, about two hours after breakfast, or the afternoon, about four hours after the midday meal.

After the bath the body must be well dried and rubbed with coarse towels.

Baths either too hot or too cold are dangerous to old people.

IN MEMORIAM.

CHICAGO, MAY 8TH, 1891.

EDITOR DENTAL REGISTER:—

At the meeting of the Chicago Dental Society, Tuesday evening, May 5th, 1891, the following resolutions on the death of Dr. William H. Atkinson, of New York, were adopted:

WHEREAS, The Chicago Dental Society having learned of the death of Dr. Wm. H. Atkinson, of New York, one of the most eminent, learned and best-known members of the dental profession, therefore, be it

Resolved, That in the death of Dr. Atkinson the members of this society feel a sense of personal bereavement in the loss of a much-loved and conspicuously-useful member of the profession, and while we bow in humble submission to the Divine will we desire to express our sorrow in his final exit to the unknown land beyond this world of ours. Be it further

Resolved, That the secretary transmit to the bereaved family of Dr. Atkinson a copy of these resolutions, and that a copy be furnished the dental journals for publication.

J. N. CROUSE,
A. W. HARLAN,
W. W. ALLPORT,

Committee.

Central Dental Association of Northern New Jersey.

NEWARK, N. J., May 8th, 1891.

At a meeting of the Central Dental Association of Northern New Jersey, held April 20th, 1891, the following resolutions were unanimously adopted, and a motion was carried that a copy be sent to the bereaved family, and sent to each of the Dental journals to be published. Respectfully,

S. S. HAWLEY, Sec'y.

We, the members of the Central Dental Association of Northern New Jersey, having learned with sincere regret of the death

of our friend and fellow-member, W. H. Atkinson, M.D., D.D. S., of New York, who by reason of his great abilities, scholarship, zeal, industry and self-sacrificing devotion to the interests of the dental profession, and the never-failing willingness to impart his knowledge to all who ask it, he was recognized by us as the most influential member of our profession, a man who devoted his life to its honor and advancement.

During the eleven years of the existence of this Society, he has scarcely missed a meeting, and his relations with us have been such, that it is our pleasure and duty to record our high appreciation of him.

That by the death of Dr. Atkinson the dental profession has been deprived of one of its most able and useful members, one whose influence for good will last while dentistry exists.

We have lost one of our best friends, and as we fondly called him "Father Atkinson," so indeed do we feel we have lost our "Father in Dentistry."

We, therefore, extend to his family, and to our brother members, of the dental profession, our sincere sympathy in their great bereavement, and that a copy of these resolutions be sent to the family of the deceased, and that they also be published in the Dental journals.

[SIGNED.]

J. ALLEN OSMUN,	}	COMMITTEE.
C. S. STOCKTON		
CHAS. A. MEEKER,		
S. C. G. WATKINS,		
C. W. HOLBROOK.		

Resolutions Passed by the Northern Ohio Dental Association on the Deaths of

DR. WM. H. ATKINSON,
DR. JOHN STEPHAN:

By the irrevocable decree of the Ruler of the Universe, the Northern Ohio Dental Association mourns the loss of one of its charter and honorary members, Wm. H. Atkinson, M.D., D.D. S., having departed this life on April 2, 1891, in New York city.

Also John Stephan, D.D.S , an active member, who died June 25, 1890, at Cleveland, O.

In the decease of the former this Society and the profession at large have lost one who was ever most keenly alive to the interests of the profession and a pioneer and leader in the science and art of dentistry.

In the death of the latter this Society loses one of its most active and conscientious members.

Committee: C. R. Butler, J. F. Siddall, T. S. Whitslar, Chas. Buffett, Henry Barnes, H. F. Harvey.

In Memoriam.

DR. W. H. ATKINSON.—In the providence of an All-Wise and Over-Ruling Father the subject of this tribute was removed from this to a higher life at his home in New York, April 2nd, 1891.

It is eminently proper that there should be placed upon the records of this association some evidence of the esteem and appreciation entertained by the members of this body, for Dr. Atkinson.

He was one of the founders of this association, and none labored with a more persevering industry, than he, for its permanent establishment and enduring welfare. He was always present at its meetings, and ever ready with a hearty willingness to fulfil any duty, or perform any work assigned to him; he doubtless exercised a deeper and broader impress upon it than any other member; he was always the advocate of a broad and liberal policy, impatient with the low, narrow and selfish. He possessed strong convictions, and was ever ready to avow and defend them, mere antagonism added strength to his forceful nature, notwithstanding this, he would yield with child-like simplicity to evidence and reason, when properly presented.

He was not only interested here, but in association work everywhere and gave aid and co-operation in the organization and maintenance of dental societies throughout this country. He was enthusiastic in the formation of dental and scientific

societies, throwing his whole energy, whenever opportunity offered, into such enterprises.

He was also greatly interested in the subject of dental education, ever ready to give wise counsel and aid, whenever it was in his power, and wherever needed.

By his enthusiasm he awakened interest, and stimulated thought wherever he went, indeed, his presence was an inspiration. He exercised an almost unparalleled influence in the profession, and that too in the way of aiding, and making better professionally those who came within its sphere, this he did at home, in his office, and abroad. He was the first to promulgate many new points in practice; he never hesitated to put forth any thing that he thought would be of service to others; he communicated freely all he had. He possessed a wonderful faculty for communicating knowledge to others, as was shown in the fact that for years he had private classes that came to his office at stated times, and sat under his instruction, and such was his power in this work, that he was able to communicate not only of his knowledge, but of his enthusiasm as well, to those who were his pupils. Every thing he did and every resource he possessed were made subservient to his ambition for the advancement of dental science and art..

He had a broad, generous and sympathetic nature; with a heart large enough for the reception of all who had any just claim upon the regard and esteem of our common humanity. He was a firm and abiding friend, sympathetic, kind, and always ready to aid those in trouble.

And now in view of this great loss,

Resolved, That we will ever cherish, and will seek to perpetuate the memory of our departed brother, whose demise we so sadly mourn to-day; that we will not only cherish it ourselves, but will seek to bear it on to those who come after.

Resolved, That in all the traits of this grand character, as above delineated, there is an example to which we can with profit conform; and especially may the younger, and the coming members of the profession be directed to this great exemplar.

Resolved, That this tribute of regard and affection be spread on a memorial page of the transactions of this body.

Resolved, That a copy, properly prepared, be sent to the family of the deceased.

Resolved, That a copy be sent to the dental journals of this and other countries for publication.

J. TAFT,
GEO. W. McELHANEY.
L. JACK,
F. ABBOTT,
EUGENE S. TALBOT.

EDITORIAL.

Specialties in Dental Practice.

Dentistry as a specialty of medicine has been much discussed during the last few years, with the result of pretty well settling the relationship between dentistry and medicine. It is now about as generally conceded to be a department of medical practice, using this term in its broadest sense, as ophthalmology, laryngology or gynæcology: but it is not this specialization that we will consider here, but it is that of separating dental practice into specialties or departments. We remember well that, years ago, occasionally persons would give as a reason for not engaging in dental study and practice, that there was not enough in it, was not a sufficiently broad field to occupy the time, attention and energy of the man of high aspirations.

Such a declaration, however, even in former times, was an indication of a narrow, ignorant mind that possessed no adequate understanding of the subject in hand. There have been for many years some instances of specialization in dental practice. The very best practitioners of prosthetic dentistry in the profession were those who had devoted themselves exclusively to that line; such cases, however, have been confined mainly to the larger cities; but what has been done there, in a few instances, gives encouragement for hope that on a much broader scale the practice could be carried out to the great advantage of both the profession and the public, who are to be served.

The most perfect continuous gum work that has ever been produced was the result of those who devoted almost their entire time and attention to it; as illustration of this reference need only to be made to such men as John Allen, L. P. Haskell and Ambler Tees. The finest metallic plate work is only produced by those who give a large share of their time, attention and effort to it. The same principle is well illustrated by our finest crown and bridge workers. The finest operators in filling teeth are those who devote themselves most assiduously to it, and give most other departments the "go by."

The proper and most efficient medical treatment for diseases of the mouth, require a skill and thoroughness that is very difficult, if not impossible, to attain by one who attempts to follow up in daily practice each of the particulars composing it. It will hardly be affirmed by any one, that the man of general practice, is as thorough and efficient, as he who centers his efforts upon one or two particulars. It has been said, "that the specialist is always a narrow man." In one sense that may be true, but such narrowness always implies greater penetration and depth; and this in many things is preferable to being thinly spread out over a large surface. While the efforts of the specialist may be exercised within a narrow sphere, it by no means follows that his mind is narrow. The most thorough and successful specialist reaches out in all directions for resources that may be made subservient to his particular line of thought and work; and these resources usually are made more definitely subservient to his purpose, than he who gathers up such resources merely for the purposes of using them in some way, and for some object that may occur to him at some indefinite time; indeed the attainment of knowledge and resources with some people, is little more than a "Toodles' door plate" affair. He who deals in specialties needs as broad culture and range of knowledge, as those who attempt to cultivate more territory.

The question very naturally follows here, what course of elementary training does the student require who proposes to follow a specialty for his life work? It can hardly be denied, that the broadest culture should be encouraged, because of the training it

gives, and preparation of the mind and hand for future work, and for the accumulation of knowledge and facts, that may be in some way utilized in the accomplishment of special work. After this broad culture and general education is attained then let specialties receive attention; specialization so far as environments will permit. The ordinary course of dental education comes up to the point where specialization should begin, and usually from this point the specialist has been compelled in the main, to proceed alone, though he really needs assistance in the preparation for his particular work. This fact is being recognized in the establishment of Post Graduate schools or departments in dental colleges. Without doubt, however, this department of work should receive more attention than has as yet been given to it in connection with any dental college. The Post Graduate course, established by Dr. L. P. Haskell, of Chicago, comes nearer satisfying the demand in this direction, especially as far as prosthetic dentistry is concerned, than has anywhere else been realized. What has been done for prosthetic dentistry in this department, ought somewhere to be done for filling and treating teeth, for Oral Medicine and Surgery, for orthodontia, and perhaps for crown and bridge work. It would seem that this work could be done more economically in connection with dental colleges than by independent institutes. There will doubtless be a variety of opinions in regard to this question, as to how the most thorough work can be done; but our anxiety need not be so much exercised as to where it is done, as to the fact, that it be most thoroughly done. Let this question with all that pertains to it be in the minds, and receive the special attention of those in our profession, who are in any wise engaged in giving shape to its interest and its destiny. College men, Association men, and all who have the true interest of our profession at heart, think upon these things.

THE proceeding of the American Dental Association a portion of which was published in the September REGISTER, will be continued and completed in the November number. The report was not completed in time for this number.

Cleveland, O., Dental Society.

For a purely democratic and unselfish dental society, go to Cleveland, Ohio. It was our pleasure to attend their meeting June 18th. Of course they have a president, secretary and treasurer, but these offices are not the goals of every member. Cleveland dentists are noted for their practical applications in dentistry and hence all items of interest that were introduced were practical in their nature.

The society meets at 5:30 p.m. and all business is transacted and the essayist of the evening then reads his paper and discussion follows until dinner is announced by the courteous waiter. It should have been mentioned that the meetings are held at the Hollenden Hotel in private parlors.

As the various courses are served, discussion of the paper and other topics that are selected by questions, continues till the conclusion of the dinner which lasts—well, until the subject for discussion is well ventilated and the food-stuffs become a burden to carry. The hospitality with which this society treat their guests is extravagant, but they know how to do it.

The essay of the evening was read by Dr. D. R. Jennings, and the readers of the REGISTER are to be congratulated that his paper, which is to be one of a series, has been obtained for publication. Dr. Jennings is one of those who rarely can be induced to write, and the younger men lose often the many golden grains such men possess until they do write. Dr. Jennings' paper appears in the present number of the REGISTER. The meeting usually adjourns at the close of the dinner. Would that there were many more such societies in existence. W.

Acknowledgment.

On other pages of this number of the REGISTER will be found a record of the proceedings of the National Association of Boards of Dental Examiners, and also of the Association of College Faculties; for the preparation of these reports THE REGISTER is indebted to Mr. Hise, of *The Dental Cosmos*, he having sent advanced proof sheets, for which he has our hearty thanks.

Ohio State Dental Meeting.

The annual meeting of the Ohio State Dental Society will be held in Columbus, on Tuesday, the first day of December, in the Chittenden Hotel. The members of the Executive Committee are bestirring themselves to make this, one of the best meetings of this Society that has ever been held. It is one of the older State Dental Societies, and should increase in strength and facility of work as it gains experience; this perhaps, has in a sense been done, and after all, the way now seems open for it to accomplish much more than ever before. It is to be hoped that every member will put forth special effort for the interest of this meeting, in securing so far as possible, the attendance of the best men in the profession throughout the State, enlisting their interest, sufficiently at least, to become members; and in addition to this, let everyone go to the meeting prepared to do something to add to its interest, so that the meeting may be interesting and profitable to all who attend. The intention is, for the meeting to occupy three days, and we will venture the suggestion that it would be well to devote a part, if not the whole of the second day, to clinics and demonstrations. A large proportion of those who attend our State Societies, greatly desire to see and learn by actual practical demonstration, and where there is an assurance of a good clinic being given, many will be attracted, who without clinics would not care to be present. In State and District Societies where good clinics are made a feature, there is always found a large attendance. The clinics connected with the Second District Society of New York have become known, and are popular throughout the whole country; men going oftentimes from all parts of the country to witness their clinics. Why shall not the Ohio State Dental Society have as good a clinic as the best? It is to be hoped the Executive Committee will take this matter into serious consideration, and then organize a clinic that shall be a credit to the Society.

The society at its last annual meeting took some steps looking to the organization of a permanent clinical institute. The committee that was appointed has had the matter under advisement. Considering the various details involved in such a work, certain

facilities were in prospect that have not yet become available, but which it is hoped in the near future may be so. This consisted in a building or rooms adapted for such a purpose, and for a museum and library as well: the securing of which was a part of the work of the committee.

It is to be hoped at this meeting of the society additional interest will be aroused, and effort put forth for the early establishment of these things; which would in reality be a department of the State Society.

We shall hope very soon to receive the programme for the coming meeting.

Bibliographical.

Chemistry of the Carbon Compounds, or Organic Chemistry, by Prof. Victor von Richter, University of Breslau. Second American Edition, from the Sixth German Edition, with illustrations; authorized translation by Edgar F. Smith, Prof. of Chemistry University of Pennsylvania. Philadelphia; P. Blakiston, Son & Co., 1012 Walnut street, 1891.

The growth and expansion of chemical science is so great and so rapid, that it would seem a difficult task to make a full record of all that has developed.

Such works as the above lead us on to quite a full comprehension of what is being done in the chemical world. Perhaps no other department of science has made such rapid strides during the last half century as that of chemistry. The following words from the preface of this edition will give some idea of the scope of the volume: "The present American edition of von Richter's Organic Chemistry will be found to differ very considerably in its arrangement and size from its first edition. The introduction contains new and valuable additions upon analysis, the determination of molecular weights, recent theories on chemical structure, electrical conductivity, etc.

The section devoted to the carbonhydrates has been entirely rewritten and presents the most recent views in regard to the constitution of this interesting group of compounds. The sections relating to the trimethylene, tetramethylene and pentamethy-

lene series, the furfurane, pyrrol and thiophene derivatives have been greatly enlarged, while the subsequent chapters devoted to the discussion of the aromatic compounds are quite exhaustive in their treatment of special and important groups."

The subject of organic chemistry is doubtless now receiving more attention than ever before, and in this volume is presented much that will stimulate the prosecution of this hitherto very difficult department of chemical science.

The volume, as arranged, will serve not only as a text book, and indeed as a reference volume, but also as a guide in conducting work in the organic laboratory. To this end numerous methods are given for the preparation of the most important and most characteristic derivatives of the different classes of bodies. The study of organic chemistry has ever been regarded as a difficult one, one fraught with, in many respects, great embarrassments. In this volume, however, many of the points are presented in so clear and understandable a manner as to be interesting to any one having reasonable attainments in chemical science, and especially is this true in the introduction of the volume, occupying the first 67 pages. This work, while it will not, perhaps, be appreciated by the tyro in chemistry, and by those easily satisfied by what it presents, will be interesting and valuable to those who have made greater attainments in, and have a love for chemical science generally, it should be found in the library of all such.

Examiner's Meeting.

The annual meeting of the Board of Dental Examiners will be held at the Chittenden Hotel in Columbus on Tuesday December 1st, 1891 at 12 M.

It is important that any, who may be interested should be promptly present at that time, and not only this, but arrange to remain until the work of the Board is satisfactorily accomplished.

It is to be hoped that the day of the examination of nongraduates as a way of entering the practice of dentistry is rapidly drawing to a close. The facilities are now so great for thorough systematic professional training, that the old superficial method should be abandoned.

THE DENTAL REGISTER.

VOL. XLV.]

NOVEMBER, 1891.

[No. 11.

COMMUNICATIONS.

The Thirty-First Annual Meeting of the American Dental Association.

SARATOGA SPRINGS, N. Y., AUGUST 4, 1891. DENTITION OF
THE FELIDÆ, BY A. H. THOMPSON, TOPEKA, KA.

Reported by N. S. Hoff, D.D.S., Ann Arbor, Mich.

Continued from page 446.

The dentition of the cat is interesting because of its high specialization. The extremes of form in the teeth of animals indicate the possible variation in less highly specialized teeth where compromised forms obtain because of more variety in diet. The kind of food determines the degree of specialization. Hence we have in carnivora and herbivora examples of extremes in specialization. The general characteristics of the carnivora are small incisors, large canines with long roots, wide diastema, reduction of the molar series, cutting blades on the molars, etc. In no other group of animals are the jaws so well and variously armed with teeth. The jaws are short, muscles strong, and the movement limited to the verticle. Food is not masticated or insalivated; being raw flesh it is only necessary that it should be torn and swallowed as it is easily digested.

The most highly specialized teeth in the felidæ are the sectional premolars and the prehensile canines, which are so characteristic as to place this family at the head of the carnivora in specialization.

The paper gives at considerable length the peculiar and important characteristics of the felidæ teeth, making an exceedingly interesting study in comparative odontology.

DISCUSSION.

DR. W. C. BARRETT wished to congratulate the association on the fact that its members were turning their attention to scientific subjects in which they ought to be especially interested, and hoped this paper would receive a careful consideration. Dr. Barrett thinks the true archetype is to be found in the dentition of the ungulata, as seen in the pig, where the dentition is represented by 48 teeth. Of the carnivora the dog tribe have a more highly specialized dentition than the felidæ, or cat tribe. He does not think the kind of food a factor in the specialization of this dentition.

DR. C. N. PEIRCE: We may draw practical conclusions from such papers that are of interest and value as well. There is undoubtedly a general resemblance in the dentition of animals living upon similar food, and it has been noticed that where the dentition has been specialized in form because of diet, that there is a decided tendency toward reduction in the number of teeth. In the horse 44 teeth constitute the typical dentition; but in the domesticated and blooded horse, the dentition is reduced by 4, possibly due to disease, nervous affections, or food. In the omniverous man his dentition seems to be in a transition state; the tendency of the teeth to decay may be due to poor tooth tissue resulting from this uncertain condition. There is a notable tendency in the teeth of the Chinese to dwarf the cuspids; this may be due to the common diet of rice, etc. In these people there is also a tendency toward enlargement of the incisors.

It is not likely that the human family will eventually become edentulous, but the habits of the people and the diet will produce modifications in the number as well as in the forms of the teeth, adapting them to the uses required. The character of the food, its consistency, etc., will also have much to do with the character of the tissues developed in the tooth.

DR. HARROW: In man there is no canine tooth, but the cuspid tooth takes its place, and its function is not to tear food, but it serves as a cutting tooth and as a guide in closing the teeth, thus assisting in securing a perfect closure or articulation.

DR. BARRETT: It is a curious fact that all animals native of

Australia have the marsupial dentition entire, or in marked modification, and imported animals with different dentitions are reduced in size.

DR. TRUMAN asked Dr Peirce why he thought the third molar was destined to be lost in man's dentition, and why he considered the cuspid to be the canine tooth, changed in form and size?

DR. PEIRCE: I have personal knowledge of over twenty patients in my practice who are of sufficient age, but have never erupted the third molar, and know no reason why this ratio should not prevail in every practice. Examinations of gorilla and Hottentot skulls shows plenty of space behind the third molars in every case, and the third molar tooth is large and well developed; while in man the third molar is small, or inconstant and occupies a very limited space.

There is no excessive development of the canine in animals. It is an ancestral development, which time and limited change of circumstances and conditions have not sufficed to cause its modification.

DR. BROPHY: The third molar is not invariably smaller than the other molars; frequently it is larger. I am inclined to think that the lateral incisor is more often lost than the third molar.

DR. PEIRCE: The deficiency of the lateral incisor is more likely to be transmitted from parents than the third molar.

DR. MORGAN: If the superior third molar is lost because of non-use, why should we find in the same mouth the superior third molars absent and the inferior third molars present? or why should the lower lateral incisor be present when the superior lateral incisor is gone?

DR. RHEIN: Is it not possible to account for the absence of the superior lateral incisor because of loss of its germ by ancestral harelip?

DR. J. D. PATTERSON read a paper entitled,

DISEASES OF THE ORAL MUCOUS MEMBRANE—ITS PATHOLOGY
AND INFLUENCE UPON THE TEETH.

Incipient causes of disease in this membrane may be acci-

dental, constitutional or hereditary. The accidental cause usually obtains while the others predispose and assist. Accidental causes are numerous; mechanical alone or accompanied by infectious material. Disease causing low functional activity are an important factor in all causes. Thermal changes are capable of modifying normal function to the extent of producing disease in the oral mucous membrane by first checking the secretion of the mucous glands, causing determination of blood to the part, effusion of serum, abnormal exfoliation of cells, purulent mucus discharge, and a general breaking down of the structures into pus, then the sub-epithelial tissues become involved and extensive inflammatory condition results. The above stages accompany disease in which constitutional, hereditary and zymotic influences do not necessarily assist, although micro-organisms may be present in the later stages.

“Mouth breathing” is a source of irritation and disease because of thermal changes and evaporation of the moisture necessary to the normal function of the membrane. Uncleaness and the accumulation of calcareous deposits are the most frequent causes of local disturbances.

A catarrhal condition of the mucous membrane of the nasal and oral cavity, because of the continuity of tissue, is likely to produce points of irritation and disease of the gums. Owing to the peculiar structure of the gum margins they are particularly liable to disease by mechanical irritants and infection when there is a catarrhal condition present, producing often the condition called pyorrhœa alveolaris. The catarrhal affection is not a disease, but an impairment of function favorable to the production of disease by other causes. There is no catarrhal diathesis and there is no proportionate relation between a catarrhal condition and pyorrhœa alveolaris. Climate may have a direct influence upon catarrhal affections, but it is not known to have any upon pyorrhœa alveolaris. Catching cold or any thing that will interfere with normal function is capable of producing disease of the mucous membrane of the oral cavity, independent of hereditary conditions, constitutional diathesis, or the influence of micro-organisms.

The irritated mucous membrane, which we find weeping out an abnormal quantity of mucus or muco-pus, is not pathognomic of any special irritant, but simply a condition. Pyorrhœa alveolaris is only a designation of a certain stage in catarrh of the oral mucous membrane, and is not necessarily pathognomic, and may result from a great variety of causes.

Dr. H. A. Smith read a paper entitled,

PHAGOCYTOSIS.

The paper gave a brief statement of the amoeboid character of the white blood corpuscle, its history and the reason why the name phagocyte had been given to it. It is by some now thought to be the agency whereby parasitic influences in the tissues of the body are destroyed or overcome. It is probable that these leucocytes are the agents which prevent excessive irritation from septic influences in the practice of filling root canals, especially where the practice of "immediate root filling" is practiced. The reason why bacteria are not found in the living pulp is because of these phagocytes circulating in the blood and permeating the tissues and coming into contact with them, destroy them. In the dead pulp there are no phagocytes and consequently the bacteria proliferate unhindered. Teeth in which the pulp is destroyed by a blow which does not fracture the enamel or dentine but destroys the pulp by the shock, oftentimes remain for years without the pulp, dead though it is, undergoing putrefactive change, or causing inflammatory conditions. This may be due to the fact that the leucocytes were extravasated in such numbers at the time of the accident as to overcome all bacterial influences. The successful treatment of pyorrhœa alveolaris by surgical means may be due to the presence of large numbers of the leucocytes in the consequent highly inflamed tissues. It is hoped that a wider study of this aspect of the germ theory for accounting for all diseases and curative agencies may be made.

DISCUSSION.

DR. BARRETT: It may be true that the phagocyte is the agent which counteracts the influence of the bacteria, by destroying the germ itself, by enveloping it in its peculiar digestive

apparatus, where it breaks down its cell wall and appropriates its protoplasm, rejecting the cell wall. This has not been positively demonstrated, but it is probably true.

DR. CRAVENS: Is pleased to present his compliments to the phagocyte, as it gives him a scientific reason for his practice of immediate root filling, and accounts for the success he has had with this method of practice.

DR. WATERS: We should not forget that there is always a first cause which must not be overlooked. This first cause should receive first attention and the attending causes should not receive the entire attention, important though they may be.

DR. LEROY asks if pyorrhœa alveolaris ever effects devitalized teeth. He had seen it stated that it did not.

DR. RHEIN said the worst case he ever saw involved devitalized teeth as much as those with live pulps.

DR. CRAWFORD does not think that pyorrhœa affects teeth that have had their pulps destroyed, removed, the canals treated and filled. Alveolar abscess is frequently mistaken for pyorrhœa.

DR. PATTERSON: Constitutional diathesis is a very important factor in the production of pyorrhœa, but I did not endeavor to discuss it in my paper.

Dr. T. W. Brophy, chairman of Section VII, reported four papers, the first one read was by Dr. W. C. Barrett, entitled,

A PLEA FOR CONSERVATISM.

The errors into which an unrestrained enthusiasm has led Profs. Koch, Leister and Pasteur, have recoiled and we suddenly discover that all lines of research, except along the line of bacteriology, cannot be ignored in our search after scientific truth. Some years ago on the floor of this society the work of Dr. Miller was discredited or hooted at. But now the truth has more than made its way; in fact the pendulum has swung back too far, and there is danger that we may have an antiseptic craze. The study of the micro-organisms of the human mouth is essential to an intelligent conception of oral pathology and dental medication. But germicides and antiseptics are not the only remedies to be made use of in the treatment of oral diseases. We are apt to run riot when a new idea is discovered.

So much attention has been given to antiseptic agents that curative agents seem to have been laid aside, and when failure to cure results the agent used is blamed and pronounced worthless, when the fault lies with the operator, because he has not recognized the conditions and made the proper selection of a remedy. The immediate root filling fad is an example of how a little knowledge can work a great mischief.

We must realize that in almost no case, which the dentist is called upon to treat, is absolute asepticism possible or practicable. In capping pulps and treating abscesses, antiseptics are useful, but they are not sufficient. Because we cannot successfully exterminate micro-organic influences entirely is no reason why antiseptics are inefficient; they are valuable helps toward cures, and must always be used. No practitioner should be content until he possesses the most approved means for sterilizing all instruments used in treatment so as to prevent the possibility of inoculating susceptible tissue. In healthy tissue it may be possible that the phagocytes are capable of destroying all infectious matter that would ordinarily be introduced, but debilitated tissue would become inoculated by the smallest possible amount of infectious material, because there is a scarcity of the phagocytes.

Again it is not enough to deluge a cavity or root canal with detergents, saturate it with germicides, soak it with antiseptics, or even exclude infected saliva by means of rubber-dam. A skillful operation must be made and anything necessary to the accomplishment of this end must not be overlooked. The perfectness of the operation will increase the permanency of the antiseptic treatment. Let us honor and encourage the patient and industrious investigators, who are giving us scientific facts, but condemn the tyro, who catches only a portion of the truth and brings into disrepute the most important scientific truths because of his ignorance and bungling. Earnestly seek new things, prove all, and retain the true and good.

WEDNESDAY EVENING.

At the opening of the session, Dr. Crouse for the Dental Protective Association, made a statement as to the condition of the patent litigation. The next suit to be tried will be the one in-

volving what is known as the Low Bridge patents, any one possessing evidence will oblige the association by communicating at once with Dr. Crouse. The committee appointed last year to examine the books and accounts of the association, reported the affairs of the association well managed and a comfortable balance of \$20,000 in good securities, etc.

In lieu of a paper, Dr. Peirce verbally stated a case of a patient of a neighbor dentist having swallowed a large sized rubber-dam clamp, which a surgeon who was called in consultation could not recover. The patient was sent home and instructed to eat bountifully of mashed potatoes exclusively for several days. The result was that the clamp passed through the alimentary canal without doing any harm and was recovered on the second day incysted in a hard ball.

DR. J. S. MARSHALL read a paper in which he gave the history of the use of Pyoktanin in the treatment of a case of malignant neoplasm, originating in the antrum, and involving the superior maxillary and malar bones. Two operations had failed to eradicate the difficulty. Parenchymatous injections of pyoktannin were used; strength one part in five hundred of a 0.6 per cent. solution of chloride of soda in distilled water. Twenty minims were injected at first and the amount gradually increased to one drachm. In six weeks the patient was considered well enough to resume his business occupation, and it is confidently thought he is cured. Special antiseptic precautions were observed to prevent inoculation and the formation of sores. In all the treatment, the exhibition of the drug produced no symptoms of systemic derangement.

DR. J. D. PATTERSON described a case illustrating some new features in the treatment of a fracture of the inferior maxilla, we are unable to intelligibly describe without reference to the drawing accompanying the case.

DR. TRUMAN W. BROPHY described his method of closing the fissure in cleft palate. Always operate when the patient is young in order to succeed. Described a case where he had operated on a babe three weeks of age. Two holes were first drilled through the superior maxillary bones from the buccal surface on one side,

passing through the bottom of the nasal cavity just above the palatal plate to the opposite buccal surface; one of these holes was toward the front and the second farther back and under the malar bone. The soft palate was closed with sutures in the usual way, and the edges of the palatal plate pared; a wire was then passed through one of the holes that had been drilled and back through the other; the two ends were then brought together and twisted until the edges of the bone had been brought into contact and the wires left until union had taken place. The bones at this age yield readily and when brought together by the wire compress they are held in place definitely until nature has had time to unite them permanently.

DISCUSSION.

DR. MARSHALL thought such an operation on a child three weeks old was too severe, and he should fear a fatal result from shock. The germs of the teeth would be liable to destruction from the drilling and manipulation of the wire.

DR. CRAVENS did not think the development of the teeth would be interfered with as they were already too far advanced.

DR. VAUK has had two fatal experiences from operations on children for cleft palate, and he would be inclined to say that such an operation was extra hazardous.

DR. MARSHALL related a case in which he had operated successfully for cleft of the soft palate on a patient forty-nine years of age.

DR. BROPHY said that children were less liable to suffer from shock than adult persons, and the soft or semi-gelatinous condition of the bones of the face at this time of life made it possible to bend them and close the cleft with certainty. It is quite important in these operations that the tissues be brought into definite and close contact, and to be sure to get this it may be advisable to lap them sufficiently to prevent separation by any possible movement.

DR. VAUK said that it was not desirable to cut entirely through the soft palate in drawing it together, but make slits which will permit stretching.

Under Section I., Dr. D. R. Stubblefield read a paper on

PEROXIDE OF HYDROGEN.

The Doctor had made careful analyses of several prominent manufacturer's products, with the view of determining the agents which are the active cause in corroding or dissolving hard tooth tissues. In three of the most prominent preparations he found both hydrochloric and sulphuric acid, and none of them contained any ozone. One preparation when evaporated left a white residue which charred when strongly heated. If the profession is restricted to the use of such deceptive preparations, over reliable signatures stating that they contain no acids, how can we expect anything but disastrous results from the use of this drug?

Referring to the case reported at the meeting last year by Dr. Peirce, where a large amount of exostosis on the root of a tooth had been completely dissolved away and the cementum and enamel attacked, after being in a bottle of peroxide of hydrogen for three weeks; the peroxide was renewed with fresh every other day, Dr. Stubblefield said this was due to the sulphuric acid, as there was an insoluble white precipitate, the chloride of calcium would be readily dissolved in the fluid and there would be no precipitate. Dr. Stubblefield does not think there is a neutral preparation of peroxide on the market. The ebullition of gas is observed in root canals containing no pus or blood, and in experiments made with blood and pus outside of the mouth, it was found that a degree of heat corresponding to body heat was necessary to secure ebullition; indicating that the presence of blood and pus were not necessary to produce decomposition of the hydrogen, but that warmth was a factor. Again neutral peroxide of hydrogen was injected into root canals containing blood and pus and no ebullition was observed; and hydrochloric acid alone was used in root canals containing blood and pus, and the same kind of ebullition was observed as when acid peroxide of hydrogen was used. It would seem that the acid peroxide has a valuable place because of the acid it contains as a detergent and disinfectant, but it would seem a wise precaution to follow its use with an anti-acid or neutralizing preparation when used on the teeth.

DISCUSSION.

DR. PEIRCE: The tooth I exposed to the action of the peroxide of hydrogen was largely exostosed. I was very much surprised to find the exostosis all removed, but the enamel and dentine scarcely affected at all.

DR. F. ABBOTT: I was much pleased with Dr. Stubblefield's paper, but it makes me sad to think that I have been relying upon peroxide of hydrogen as a sure test for the presence of pus in deep-seated and obscure places.

DR. VAUK: It seems to me it is an easy matter to test the different preparations with litmus, and when an acid preparation is found, use it with caution or take precautions to prevent its doing harm. It is a very unstable preparation.

DR. FRIEDERICH: The very fact that the heat of the mouth is sufficient to decompose this material makes it the valuable preparation it has proven to be; by its decomposition gases are evolved which force their way to the surface, carrying with them foreign and dead material which we want to get rid of.

DR. TRUMAN: Notwithstanding this adverse report we must not give up the use of peroxide, for the readiness with which it decomposes and gives up its elements makes it invaluable not only as a detergent, but as a germicide and disinfectant through the liberated oxygen, sulphuric acid, etc.

DR. INGERSOL: This preparation is not a chemical compound; the extra oxygen is present because of force used in the preparation, and consequently it is easily liberated when even slightly warmed. Peroxide of hydrogen is not a medicament at all because it possesses no stimulating property whatever. It behaves very badly in closed cavities, antrum, and blind abscesses, because it coagulates the pus in the cavities, and this coagulated mass becomes an intolerable irritant. Don't like it in pyorrhœa or any case where there is pus.

DR. HORTON suggested using a dilute solution in warm water to wash out the pus before using the peroxide in full strength.

DR. STUBBLEFIELD: Peroxide of hydrogen as at present prepared has no special advantage over aromatic sulphuric acid, which will accomplish all that peroxide will do and has a stim-

ulating or medicinal virtue besides. The pain accompanying its use is due to the combination of the water and sulphuric acid, producing heat.

DR. E. PARMLY BROWN described a new method of making a porcelain crown with a collar around the end of root. A collar is made of platinum to fit the end of the root, and the band is left wide enough so that it may be cut in slits all around, down to the face of the previously prepared root; the projections are then bent down, one at a time, over the end of the root forming a complete covering or cap. A Brown or Logan crown is then placed in position, the pin passing through the cap with the pulp canal, and cap and tooth crown removed together and fused together with porcelain in the furnace. The cap may also be soldered on to the crown.

DR. LOUIS OTTOFY made the report of Section II, on Dental Education, Literature and Nomenclature.

At the present time there are in existence thirty-three dental colleges; 1,241 students graduated from these colleges this year, being an increase of two hundred and seventy. Twice as many students are graduated now annually as five years ago. Thirteen colleges graduated this year less than 100 students; eight graduated 250, and twelve graduated 900. There are 103 dental societies in the United States, distributed as follows: 4 national, 7 inter-State, 41 State, 22 district and local and 29 city. The total enrollment of all these societies is 4,000. Eighty-two of these societies were unrepresented in the American Dental Association last year.

The Post-Graduate Dental Association, organized on the Chautauqua plan, is a promising institution; its course of study and reading embraces a special and definitely outlined course of reading in dental literature, which when completed will entitle the reader to an examination, which if satisfactory will secure a certificate.

Dr. Peirce read a paper written by Dr. Charles E. Koch, of Chicago, on

THE STATE BOARDS, THE PEOPLE'S OFFICERS AND THE PROFESSION.

All agree that dentists should be better educated. National

law provides that the several States of the Union shall each make its own laws for the regulation of the conduct of its citizens. Accordingly each State has enacted its own law regulating the practice of dentistry. People do not judge a profession by its brightest lights, but by its members in the aggregate. Therefore the people, for self-protection, demand that the standard of dental education shall be sufficiently high to indicate that the possessor of its diploma is qualified and trustworthy. As educators we ought to recognize the fact that the future dentist is to serve the people intelligently and faithfully, and no student should be encouraged to enter the profession who has not the necessary qualification of body and mind and soul to serve the people faithfully in this particular sphere. If this idea was enforced when a student entered college and all through his course he was closely scrutinized, and not graduated until qualified, the diploma of a dental college would have some significance. While the States do not supervise the work done in the colleges some of them review it by requiring graduates to pass an examination before their State boards before allowing them to practice. This is an additional safe-guard for the people, and it is equitable to all concerned. It protects the college which is doing honest work and compels the mere money-making organizations to take better ground than they otherwise would. State boards also exercise an important function in protecting the people from charlatans and tyros. The charge has been made that these boards are generally appointed through political influence and are liable to be incompetent if not corrupt. The writer has never known of an obscure, unintelligent or dishonorable man being appointed to one of these boards. Just discriminations are made between the work done by the large number of competent teachers and that done in schools run by unqualified pretenders on the money basis only. This the profession and the public expect from State boards. The number of dental schools has unreasonably increased during the past few years, and since the standard in some is so low, the people have been compelled in order to protect themselves to establish, at least, minimum requirements. Many think some States have gone too far and

require too much. But the fact is in most States the requirement falls short of what it should be. The profession instead of finding fault with the work of these boards should support and sustain them. Recruiting the future dental profession must be done with more circumspection than ever before, and if only qualified men are allowed to enlist, it will be impossible for politicians to appoint unqualified men on examining boards. The mere possession of a diploma, although from a regularly chartered institution, brings no vested right. The people have the right to demand that the professional man who is licensed to practice shall be fully qualified. The writer thinks every State should do so, if for no other reason that colleges which are doing disreputable work may be exterminated.

It is charged that State examining boards assume greater virtue and knowledge than college faculties. This is not true. State examining boards do not attempt to impart instruction, and they in comparison do only what the county examining boards do for candidates for teachers in the public schools; in this case graduates as well as non-graduates, even of schools maintained at public expense entirely, are subjected to the same examination. If it is necessary to examine the graduates of publicly maintained institutions, how much more is it necessary with graduates of schools maintained and supported by student's fees. The dental profession must support and sustain its State examining boards if it cares to be considered a respectable profession and have the confidence of the people.

DISCUSSION.

DR. CRAWFORD: Outside of purely scientific questions dental legislation is the most important one discussed to-day. In regard to the statement that the people are demanding protection from dental charlatans I don't think the people, en masse, are especially interested. The fact is there are not, to-day, enough duly qualified dentists to serve the people as they ought to be. As to the standing of the profession, no profession is more respected, and its schools will take as high, if not better rank, than the medical schools. No State should pass a law compelling its examining board to examine the graduates of every school, but

the board should be entitled to register the graduates of schools maintaining a proper standard of qualification. The legislature of Tennessee, to a man, when interviewed, expressed the opinion that all reputable colleges should be recognized.

DR. BARRETT: Examining boards do not know what methods teachers have adopted in giving instruction and it would not be a difficult matter to puzzle and annoy a very bright student, and more so a timid or bashful man, although well qualified. State examiners who have never been teachers know little of the difficulties of imparting instruction, and it may be that members of college faculties could embarrass, without much difficulty, the State examiners themselves. How would it do to have a national board of examiners to examine State boards and college faculties? The college faculties and State boards must be harmonized. Members of State boards should examine the workings of the various colleges, and approve or discredit their work, and then accept or reject their diplomas.

DR. N. S. HOFF read the report of Section III on Operative Dentistry. The report reviewed the work of the profession during the past year as expressed in the periodical literature, contributions and proceedings of societies, making from these such inferences as were possible as to the general progress in the manipulative branch of practice.

DR. A. W. McCANDLESS made a similar report on new instruments and appliances, making mention of and exhibiting at the meeting every new appliance or instrument which had been brought to the notice of the profession during the year.

DR. L. E. CUSTER read a report on dental pain obtundents and local anæsthetics, and exhibited new appliances for the accomplishment of anæsthesia.

The use of sulphuric ether marks the beginning of the present idea of using volatile agents as obtundents. Dr. Ottolengui suggested and used this agent in 1888. It is applied by means of a spray apparatus which will throw an attenuated spray of ether upon the dry dentine, where by rapid evaporation reduction of temperature is secured, resulting in interruption of normal function; continued use would result in death of the pulp. Nitrous

oxide used in the same way is used to obtund sensitive dentine. A difficulty in its use is that a very strong tube is necessary to convey it from the cylinder to the spray apparatus. It is not likely that this agent will become popular because of the necessarily unwieldy apparatus required and the possibilities of damaging results.

DR. RHEIN suggests and has used chloride of methyl for producing low temperatures and obtunding sensitive dentine. It is possible to lower the temperature to 40° below zero with this agent. It has no affinity for water and acts only by lowering temperature. The apparatus for its use is comparatively simple and readily managed. It produces more cold than ether, the pain following its application is briefer and the impression more profound. If inhaled it produces general anæsthesia. It is rather expensive, and smells badly, but it is a valuable agent.

Chloride of ethyl comes from France and is put up in three gram glass flasks or tubes, having an attenuated end, which is broken off when wanted for use and the liquid becomes gaseous and escapes. If this is directed into the sensitive cavity of the tooth it produces insensibility by the rapid evaporation of the fluid. The principal advantage of this agent is the fact that no costly or bulky apparatus is needed for using it.

Another class of agents are desiccating obtundents. Hot air injectors, instruments for spraying the cavity with hot air containing some volatile agent. Of this class of agents only such as use a spray material which has a strong affinity for water are practical or useful, as any anæsthetic property a drug might have ordinarily, is lost in attenuation when used as a spray. A convenient apparatus of this character is the "Small Obtunder." It consists of a small cylinder with a heating bulb and proper points. In the cylinder is a cartridge containing absorbent material, saturated with absolute alcohol. The bulb is heated and the vaporized alcohol is injected from the nozzle into the cavity where it acts by the heat and its affinity for water as a desiccant, and producing an obtundent effect by interfering with the normal function of the nerve fibril. The Milton and Richmond devices are constructed on the same principle and are adapted to the use

of various agents, essential oils, etc., but as these agents have no special affinity for water, they do not produce desiccation and are inefficient.

Local anaesthetics.—New anæsthetics are not as numerous as obtundents. Many nostrums have been put upon the market. Cocaine seems to be the basis of most of them. It is combined with such agents as chloroform, ether, alcohol, carbolic acid, anti-pyrine, aconite, chloral, etc., etc. Cocaine is a powerful and dangerous drug and is used with the greatest caution, and two per cent. solutions are now generally used when it is injected. Recent examinations of the formulæ of some of these nostrums reveals the fact that many of them are positively dangerous to be used in any quantity and should never be injected into the circulation.

Refrigeration by chloride of methyl, nitrous oxide and chloride of ethyl, is being used as a local anæsthetic with gratifying results. The principle of its action is to paralyze the neutral activity of the nerve supplying a limited part only. This method of necessity cannot be as effective as injections of cocaine, because of the rapid restoration of normal function by means of the circulation.

Dr. V. H. Jackson, of New York, read a paper on

A METHOD OF REGULATING TEETH.

Every tooth should be encouraged to take a correct position in the arch when erupting. At this time because of the small amount of alveolar process developed, the teeth are readily moved if out of position. In the experience of the author the wire crib and springs accomplish this most readily. Impressions are best taken in modeling compound, the hardening hastened by applying small napkins wet in ice water. Use pulverized soap-stone to prevent dragging when the teeth are long. Fill all irregular spaces and undercuts with wax previous to taking the impression. If a tooth is inclined so much as to prevent easy withdrawal of the impression, with a string tie soft compound around the tooth so as to secure such an incline as will allow of easy withdrawal of the impression. Before taking the impression lay over this compound two or three pieces of wet, thin paper to keep the warm compound from adhering to the tooth and its bushing of

compound. After removing the impression the compound may be removed from around the tooth and dropped into its proper place in the impression. The paper gives in detail the method of making the wire cribs and springs, illustrating with drawing the different processes. For a complete description the reader is referred to the transactions of the association, as it will be published in full there with the necessary drawings.

The use of copper binding wire in making these cribs has convinced the author that copper has a decided tendency to reduce sensitiveness of the teeth where an appliance comes in contact with parts of the teeth unprotected by enamel; and it is suggested that if copper amalgam put into rubber plates where the plate comes in contact with sensitive teeth will have a desirable effect.

The advantages Dr. Jackson claims for the "crib" system, are, young patients can wear it with less inconvenience than any other form of appliance; additional retaining devices and springs can be readily added at any time. It is easily retained and does not interfere with the articulation.

Two other papers were reported to be read under this section, but for lack of time they were withdrawn by the authors, much to the regret of the officers of the section as they were both valuable and interesting.

For lack of time there was no discussion of any of the papers of this section.

Dr. Frank Abbott in lieu of a report from Section IV, Histology and Microscopy, read a paper by Carl Heitzman and Frank Abbott on

SENILE ATROPY OF THE UPPER JAW.

In advanced age the human organization is reduced in size and weight; the whole body as well as its individual tissues shrivels. The question is where does this atropy take place? and what are its visible signs under the microscope? The upper jaw of a woman, who died at the age of 75 years, was placed in a one-half of one per cent. solution of chromic acid for several weeks to soften the bony parts. Vertical sections gave striking views of advanced senile atropy. The medullary spaces varied

in size and were filled with either a delicate fibrous connective tissue, or a granular matter, probably disintegrated protoplasm. The most striking feature was the presence of portions of hyaline cartilage at the same height as the former bony structure, indicating that it had been produced from it, and was, in a measure, replacing it. Hyaline cartilage is present in the lower jaw in embryonal life, but it is supposed the upper jaw is derived from fibrous connective tissue. Hence it seems remarkable to find hyaline cartilage in old age. This is another proof that in old age there is an inclination of the tissues to return to the childhood or even intrauterine conditions. Sections of the case referred to show a thinning of the epithelial layer, due to the reduction in the size of the cells; possibly some of the cells were worn away by mastication and never reproduced.

The dense fibrous connective tissue is changed into a faintly granular protoplasmic mass, in which living matter is scanty and pale, apparently on account of a hydropic infiltration. This will explain the flabbiness of the tissues in old age and the gradual loss of living matter. Particles of living matter imbibing serum become detached, disintegrate, and are taken into the blood and lymph circulation and carried away, and in this way the shrinkage of the body takes place, as new matter is not built up as rapidly as the disintegrating process takes place. The blood vessels in old age are very scant. The arteries disappear by a process of thickening and granulation of the different coats which plug the lumen, and the whole is transformed into a solid tract of fibrous connective tissue, and as such is subject to the same process of disintegration as other connective tissue as indicated above. It was not possible to trace the process of the disappearance of the veins in the same way, but it probably occurs much the same. The nerves also undergo the same disintegrating process, but no study could be made upon the axis cylinder of the medulated nerves in this region.

Hyaline cartilage is doubtless a transient or provisional tissue in early life and the same seems to be the case in declining age, since it appears as a mere intermediate tissue between previous bone and ultimate fibrous connective tissue. The bone is

absorbed on its periphery by the periosteum, by the formation of new haversian canals in the solid bone and the enlargement of the former haversian system. The borders become corroded and filled with bay-like excavations, which contain protoplasmic bodies of various sizes and shapes. Nowhere in the specimen were the multinuclear giant cells of Kœliker or osteoblasts, seen. The origin of the medullary corpuscles is from previous bone corpuscles which have been deprived of their surrounding bone substance. The medullary corpuscles elongate and become fibrous basis substance, with a simultaneous new formation of blood vessels. This new formation is again broken down and carried away as above. On this theory the interstitial growth of bone finds a rational and satisfactory explanation. All tissues arise from protoplasm of its medullary corpuscle, and all tissues return to this embryonal or medullary condition before they are absorbed. Origin and decline show a striking similarity, and that which is between "three score years and ten," is a struggle, and change of the whole person as well as all his constituent parts.

DISCUSSION.

DR. HUNT: This is a valuable and satisfactory paper, as it presents to us a rational and harmonious theory, not only for the building of the body, but for its destruction; not only the soft, but the hard structures as well.

DR. INGERSOL: If Dr. Abbott wishes to teach us to grow old gracefully, he certainly has presented us a very attractive theory as to how it is done. We have often wondered what the process of absorption really was. It seems that construction and destruction must be preceded by solution. The temporary teeth afford an excellent illustration. The nature of mature tissue is not the same as embryonic, and I would like to know what takes place in this tissue. Do the same processes in modification take place in these structures? I would like to ask Dr. Abbott why the bones of aged people are so brittle if there is a return to embryonic conditions?

DR. ABBOTT: In old age there are fewer cells and the bone corpuscles are infiltrated with lime salts. In the transition of

adult to aged bone the process is so gradual, and even in the breaking down at the most active period, there is no actual return to the embryonal condition, but the tendency is always that way and the process is similar.

The next paper was reported under Section V, *Materia Medica and Therapeutics*, entitled,

ELECTRICITY AS A THERAPEUTICAL AGENT IN THE TREATMENT
OF HYPERÆMIA AND CONGESTION OF THE PULP
AND PERIODONTAL MEMBRANE.

by Dr. John S. Marshall.

These diseases are common in dental practice and difficult to control by the ordinary means at our disposal when caused by caries, injury, mechanical irritation, etc., and much more difficult when caused by constitutional derangements.

Electricity can be used successfully in the first mentioned cases to allay the inflammation, and in the others to prevent suppuration or the formation of new growths. The galvanic current is specially applicable to these cases. The negative and positive currents of electricity can be used to stimulate resorption of inflammatory products and new growths. In my own mouth a near exposure of the pulp was capped and covered with an oxyphosphate filling; congestion of the pulp and toothache ensued, which was relieved permanently by two one-half hour applications of electricity on succeeding days. The positive pole of the continuous galvanic current was applied to the tooth and the negative pole to the carotid triangle. The current was applied gradually and the pain gradually disappeared. Three years have elapsed and the tooth has given no trouble since and there is no indication of any peculiar sensibility. In one case of congested pulp in a patient of delicate organization the treatment was used successfully. Pericementitis not caused by septic poisoning from a devitalized pulp, in many cases, may be treated by this method with very gratifying results. The treatment is also useful in hyperæmic odontalgia accompanying pregnancy. When used in these cases it should be accompanied with rest in the recumbent position and anodynes.

From three-fourths to one and one-half miliamperes are suffi-

cient in the cases mentioned above, the frequency of the application depending upon the severity of the local symptoms and the susceptibility of the patient, and one treatment every twenty-four hours of from 15 to 30 minutes is usually all that is necessary. The Faradic current is invaluable for determining the vitality of the pulp. It is superior to the mouth lamp. Hypersensitive conditions of the pulp may be diagnosed and isolated certainly and expeditiously. The miliampere meter should always be used to measure the strength of the current. The battery, miliampere meter and electrodes suitable for this treatment may be secured from the McIntosh Battery and Optical Co., of Chicago.

DR. CORYDON PALMER was given the floor to make a request of the association. He said he was grieved and shocked continually at the lavish display of gold in the teeth of people, and he thought it was a disgrace to the dental profession that no more effort was made to prevent this exhibition, and he hoped the members of this association would strive to overcome this objectionable practice.

Another matter which demands our attention is the premature loss of the deciduous teeth. These teeth, even the roots should be kept in place until the permanent teeth are ready to emerge from the gum and supplant them, and he hoped the dental profession would take more interest in this matter and that the wholesale slaughter of these teeth would be stopped.

CLINICS.

DR. C. A. TIMME, of New York, gave a clinic illustrating his method of making a glass inlay. A low fusing porcelain is fused into a matrix made with pure gold, No. 60 foil, by burnishing it with a semi-hard rubber point into a cavity previously prepared with definite borders and no undercuts. The powdered porcelain is then mixed with distilled water so that it will readily flow into all parts of the matrix, and is placed in the matrix with a small pointed brush. The matrix with the porcelain in place is then placed on a little platinum disk which is perforated to allow the flame to pass through it; the platinum serves to prevent fusing the gold foil, and the whole held with a pair of tweezers in the flame of a bunsen burner or lamp until the porcelain fuses and

fills the matrix ; two burnings are usually necessary as the first shrinks considerably. The matrix is then allowed to cool and the gold foil stripped off and the glass filling is ready for insertion in the tooth. Slight undercuts are then made in the cavity and enough thin cement used to fasten the inlay in place. There will usually be sufficient roughness on the underside of the inlay to furnish attachment for the cement. A variety of shades are supplied with the material so that any required color may be readily obtained. This promises to be a ready and successful method of making these inlays.

Dr. Timme also uses this material for making faces for all gold crowns; this he does by cutting out the face of the crown and soldering in a piece of platinum, which makes a shallow cavity, and into this the porcelain is fused, much as the porcelain onto a watch dial. The material cannot be used on less than twenty carat gold.

DR. V. H. JACKSON gave a clinic on making the cribs and springs used in regulating teeth. An intelligible description is not possible without drawings to illustrate. The apparatus and tools necessary are to be found in almost every laboratory. Plate shears, pliers, soldering-iron, block tin or soft solder, taggers' tin, and piano wire, muriate of zinc. The joints are all made by lapping the wires and wrapping them with narrow strips of taggers' tin, and saturating this joint with the muriate of zinc, applying a good sized piece of solder and melting it at once with the hot soldering-iron. This is all done while the fixture is in place on the plaster cast. Care must be observed to not apply the muriate of zinc until ready to apply the hot soldering-iron as it corrodes the piano wire very quickly and prevents a successful job of soldering. It is a very quick and easy way of making these appliances, and extra springs or retaining appliances can be quickly added at any time.

DR. TRUMAN W. BROPHY treated a case of disease of the antrum by perforating it through the alveolar process with a trephine. The treatment suggested was the usual detergents, disinfectant and curative remedies. The case had been previously treated, but had not been properly trephined to secure free drainage.

DR. E. A. STEBBINS, of Massachusetts, exhibited a patient, a boy, in whose mouth he had treated all incipient caries of both the deciduous and permanent teeth with nitrate of silver, and had successfully prevented the continuation of the decay. The method he has used is to apply to the cavity after removing a portion of the softened material powdered nitrate of silver in the presence of the ordinary moisture of the tooth, or, if the rubber is applied a drop of water is added to dissolve the nitrate of silver and allow it to combine with the tooth structure forming the black eschar which has been so successful in preventing further progress of decay. The Doctor has been practicing this method for three years, and he exhibited a great many teeth in which the cavities he has treated showed no signs of returning caries, while other teeth in the same mouth or even the same tooth in other places not treated, was largely decayed. These teeth were all deciduous teeth that he had knowledge of and had watched until they were extracted to make space for the permanent teeth.

DR. ROLLO KNAPP, of New Orleans, exhibited some fine specimens of bridge work, a convenient case for holding instruments and materials for the bridge worker, a new form of bunsen burner, capable of producing any form of flame or any quantity from a small jet to a powerful heat, it is really a combination of several small bunsen burners attached to a plate in such a way that one or all may be used, a broad or concentrated flame may be had at pleasure. He also exhibited a neat device for washing all blood from the fixtures in a fountain spittoon, and controlling by a valve which is worked by pressing an electric button on the arm of the operating chair the water supply.

The meeting was a large and successful one, but it is much to be regretted that so much time had to be consumed in mere business details and discussions of them and that more was not allowed to the discussions and reading of scientific papers. Many valuable papers were offered and not read, and there was no time allowed for discussion of many that were read. It is to be hoped that the new amendments offered this year, to the constitution and by-laws, will remedy this serious defect.

The association elected Dr. W. W. Walker, of New York City, President, and will meet next year at Niagara Falls.

Disease of the Antrum of Highmore.

BY LEOPOLD NEUMANN, D.D.S.

Read before the California State Dental Association.

Mr. President and Gentlemen:—

The Antrum of Highmore received its name from the discoverer, Nathaniel Highmore (1651). This cavity is situated in the superior maxilla. Its upper wall is formed by the floor of the orbit; the lower by the alveoli of the molar teeth, the roots of which occasionally penetrate it. The outer wall of the nasal cavity is its interior, while its anterior wall is composed of the malar process. Its shape and size vary very much in different individuals, and even the right and left in the same person sometimes do not correspond.

This term, disease of the antrum, (Bosworth) is used to designate the not infrequent complication or concomitant of catarrhal inflammation of the nasal mucous membrane, which is characterized by an inflammatory process in the mucous membrane lining the Antrum of Highmore, which subsequently degenerates into the purulent process, as is the almost invariable rule where a chronic inflammation of the mucous membrane occurs in a closed cavity.

This pus secretion accumulating in the cavity of the antrum makes its exit through the ostium maxillare and escapes into the nasal cavity, giving rise to a more or less profuse discharge from the nose.

The most frequent affections of the lining membrane of the antrum are preceded by inflammation of the nasal passage, or of the periosteum of the molars, bicuspid or cuspids. Bosworth asserts that the catarrhal inflammation of the nose is the result of local conditions which does not in any degree, probably, operate in the antrum; in other words, so-called nasal catarrh is a perversion of the function of the normal respiratory apparatus of the nose, and its causes operate only on those tissues, and have no effect on the delicate membrane lining the antrum.

Zuckerkandl, Schiffrers and others take the ground that the most frequent causes of this disease are transmissions from the inflamed nasal passage to the lining membrane of the antrum; while Frankel, Garretson and others claim that this membrane becomes affected through carious teeth, or through inflammation of the periosteum of the roots of the teeth. This difference of opinion is very easily accounted for if we take into consideration the fact that cases arising from defective teeth are treated by the dentists, and those resulting from disorders of the nose by the specialists in that line. But there is no doubt that both decayed teeth and inflammation of the nose are the direct causes of this disease, in which, at the beginning, when the cavity becomes filled with serum or sero-mucous, the pain on the affected side is a dull, heavy one, extending from the alveolar border to the lower part of the orbit, and to the roof of the mouth. The symptoms and appearance of the diseased part are similar to those in cases of deep-seated periostitis, pulsation, nausea, and sometimes fever.

Pus will flow, when lying on one side, passing into the throat in such quantities as to induce nausea. The pain increases until the pus makes its escape through the normal opening of the nose, or an artificial one through either the cheek or the alveolar process, when the pain subsides.

After this the discharge of pus continues from this opening sometimes for a short time, and again for years, till the trouble becomes chronic, the disease in the antrum in the meanwhile undergoing no apparent change.

The odor of this pus is often very offensive, and in color is greenish, yellowish, or a dirty white. After the diagnosis has been established, which is greatly facilitated by translumination, and it is found that the trouble is produced by, or arises from, nasal polypi, hypertrophia rhinitis, or nasal inflammation, a straight opening from the alveolar wall, not less than one-eighth of an inch in diameter, should be made at once, and if necessary even a sound tooth should be sacrificed and extracted; for I have found that drilling through the side of the antrum below the inferior turbinated bone is less satisfactory, as it gives the

patient the feeling of undergoing a serious operation, and at the same time does not offer the same ready facilities for cleansing. If the cause is a carious tooth it should be extracted and after this the antrum should be thoroughly cleansed by injecting a solution of listerine two or three times daily till a cure is effected, or any of the following can be used :

Sulpho-carbolate of zinc, five grains to the ounce ; resorcin, five grains to the ounce ; hydro-naphthol, one-half grain to the ounce ; nitrate of silver, five grains to the ounce, or a solution of carbolic acid, three grains to the ounce ; boracic acid, twenty grains to the ounce, etc.

If carious bone is present it should be removed. To prevent the closure of the artificial opening a silver drainage tube should be inserted and attached to a tooth with a clasp. The tube is to be kept closed with a small cork and when the discharge ceases the orifice should be allowed to close gradually.

Case No. 1.—Mr. R. A.; German ; aged 42 years ; consulted Dr. H. L. Wagner on account of a discharge from the left nostril, and pain on the left side. Pus was discovered coming from the aperture of the antrum. By the use of translumination the left side was found to remain completely dark, while the right showed the reflection of light. An examination of the teeth revealed the fact that the second left molar, which contained a large amalgam filling, proved to have a dead pulp. I placed the patient under the influence of ether, extracted the tooth and drilled into the antrum. On removing the drill a great deal of foul-smelling pus escaped. A silver drainage tube one-eighth of an inch in diameter was inserted and fastened to the first molar by a clasp.

Daily injections of listerine were used and the discharge decreased, the patient leaving for Germany after some three weeks, whence he informed me that it had discontinued entirely and the pain had left him.

Case No. 2.—Mrs. R.; aged 25 years. This lady had been confined to her bed for five days with intense pain, which in her opinion was the result of the operation of transplanting a left superior first molar. When on the morning following she found

the pain had increased, and her face had begun to swell she called in her dentist who applied some medicine and kept her in bed two days more.

By that time the agony had become insufferable and she insisted that he should extract the tooth, which he did. But the removal of the tooth not having given the hoped-for relief, I was consulted, and found her, as stated before, with a very much swollen face, a pulsating pain extending from the roof of the mouth to the orbit. By probing, a small opening into the antrum was found, through which I passed a small lancet. On removing this it was followed by a discharge of purulent, yellowish, thick pus, which gave immediate relief. On the following day, by using cocaine in the operation, the opening was enlarged with a drill specially made for antrum cases, one-eighth inch in diameter. I then followed the usual course of treatment, effecting a cure in five weeks. At the end of six months the opening had become very small, and after one year had closed completely.

Case No. 3.—Mrs. H.; aged 33 years; came to me with the following history of her case: Her dentist had been treating the left canine, which had been filled with gold, and was very sensitive to the touch. There was no swelling, and he followed the usual course outlined in such cases, of taking out the filling and nerve, which allowed a copious escape of odorous pus. After two months of treatment without any apparent improvement he, with a syringe, injected some medicine in the canal. To his astonishment the injection seemed to have disappeared, and after frequent repetitions the solution finally made its way through the left nostril.

When this had continued about a year without improvement the patient insisted on having the tooth extracted and the root, on examination, proved to be honey-combed.

He then drilled from the canine fossa into the antrum and after a year's time, no relief being experienced, the patient came to me.

The discharge was of such a nature that the presence of carious bone was indicated, the removal of which I advised, as also

the second bicuspid and the first molar, both of which contained large fillings, and were so-called dead teeth.

After two weeks' treatment, consisting of daily washing out with listerine, though the odor disappeared entirely the discharge has not diminished, and to-day is as large in quantity as when originally seen by me. To prevent the antrum filling with pus, which causes intense pain in the head, it has to be washed out daily, and though in this case every kind of injection known to be efficacious in this disease has been used, success has not yet crowned my efforts.

By the use of the antroscope the mucous membrane was found to be enlarged to about eight times its normal thickness.

The antroscope is an instrument constructed on the principle of the cystoscope and we are indebted to Dr. H. L. Wagner, of this city, for this valuable aid to the examination of the antrum. It can be used only after the antrum has been opened, but then with an electric light the whole cavity can be illumined and its mucous membrane examined. I have operated on twelve cases where the causes were other than from the teeth, and have found among these but one on the right side. Of these twelve cases eight were examined by translumination and the left side was found dark, except in one case in which this system showed light through both sides, and still when the antrum was drilled into it was found to be filled with pus.

Dr. Van Orden.—Mr. President: You asked me to open the discussion on this paper. I have not had an opportunity to prepare myself. I did not expect the paper to be read this afternoon. Speaking of the test of illumination it may be well to call attention to a case where illumination was used with the lateral incisor, which is pulpless. I should say that while that method would be, as a rule a test, there might be cases which would not answer to that test. The degree of density of pus, I should state, would sometimes be so near that of the tissues, that translumination would not show any line of demarcation. In the case of the pulseless lateral incisor, in which I used the electric method, I examined the case a number of times and utterly failed to detect any change of color. The case continued to

trouble, so that at last I was obliged to test the vitality of the tooth by drilling into the pulp chamber, and found that the canal was empty; so that it brings in the practical points in regard to the treatment of pulpless teeth. There was one remedy not mentioned—that is the chloride of zinc. It would be, my judgment theoretically, that cases would yield to treatment by chloride of zinc injections as readily as to any medicament. As to the dimensions of the antrum, while in the main the roots of the molar teeth are concerned and have some relationship to it, it may extend to the laterals. Perhaps it seldom extends to the centrals. I remember my great surprise when a very young practitioner in treating an open abscess through the lateral incisor and penetrating the antrum. It yielded very readily in a few days by the treatment of the lateral and a few injections into the antrum. It is to be noted that the dimensions of the antrum increase with age. It is much smaller in children than in adults, and the wall becomes very thin sometimes in old age—very thin indeed, to the point that it is very readily perforated. As to the perforation of the antrum, it is often preferable to resort to amputation of one of the roots of a superior molar instead of the removal of the tooth. As Dr. Neumann has stated the opening should be an eighth of an inch, at least, in diameter. The removal of the root would obviate that and a valuable tooth might often be saved. It is a question among specialists whether treatment through the root is always a necessary thing. One authority goes so far in his statement of cases as to close up openings that have been made by dentists, going on with the treatment of the catarrhal condition of the nose, and in a majority of cases with success. He cites a very large number of cases in which the alveolar opening was kept and which would not yield to treatment.

Dental Ethics.

BY W. A. KNOWLES, M.D., D.D.S.

Read before the California State Dental Association.

Mr. President and Gentlemen:—

In the busy whirl of the competitive system those engaged in business are often less solicitous for the welfare of others than for their own individual success.

The very nature of competition is such that it seems impossible for one to succeed except it be at the expense of others; that in climbing the ladder of success it is held to be necessary that some of its rounds should be formed by the bodies of those who have been unsuccessful.

Competition is so great that all manner of methods must be adopted to direct attention towards those who are endeavoring to succeed.

Competition frequently causes the cost to the consumer to be lower, but does not necessarily imply that such articles will be cheaper.

Competition reduces the profits to the dealer, and not infrequently the *quality* to the consumer, and it would be a pertinent question to ask in such cases as to who is benefited.

The statement has been made that it is impossible for one to be strictly honest in business and succeed. The truth of this statement must be for each to decide individually, but the fact will be acknowledged that competition does not cultivate the most desirable traits of the human character.

While advertising and other "business" methods may be tolerated in a business it is altogether a different matter in the humanitarian professions of medicine and dentistry. Those professions which have for their object the alleviation of pain and suffering should be above the mere love of money-making.

It is impossible to extend the sphere of a humanitarian profession by the employment of additional persons as is done in business; individual and personal service being expected and demanded by patients.

A profession should not, consequently, be expected to yield such a harvest as a successful business would, and he makes a mistake who enters a humanitarian profession for the sole purpose of gaining riches.

What are we to think of the professional man who said that when he was called to a case he first ascertained the condition of his patient's pocket? Should not such a one be called by his appropriate name, a highway robber?

The true professional instinct causes one to act from the love of his calling, and makes the fee for the service rendered, a matter of secondary consideration.

The curse of professions has been that many individuals have entered them for the sake of the fees, or because such professions seem to them an easy way of obtaining a good living.

Such persons, in order to succeed, introduce methods such as are to be considered legitimate in *business*, and they endeavor to conduct their professional affairs in a similar manner.

If the result of such methods in business is doubtful, what will it be in professional affairs?

The tendency is to drag the profession down to the level of a competitive business, and here it is that the consumer or recipient of service is the sufferer, for the temptation would be to charge the highest possible fee, and to use the shortest amount of time in performing the service.

Professions have been brought to their present standards of excellence by the unselfish generosity of men who have preceded us, and now, as in times gone by, there are to be found upon the outskirts of the profession, and even at times pressing forward into the main body, those parasites who endeavor to drag the professions down to the dust.

Let us remember that whatever standing the professions now have is largely the result of the efforts of those who have gone before us, but upon us depends whether the standard shall rise or fall. Let us, therefore, do all in our power to elevate the professions, and ourselves refrain from, and discourage in others, every thing having tendency to lower the standards.

As long as fees are large enough to tempt the cupidity of

money-loving individuals, so long will those persons having no loftier ambition enter into professional ranks.

To this class of practitioners the human body is but the ground wherein to delve for dollars. The dollars seem to be the main consideration.

They seem to change the old saying to "Physician, *heal thyself.*"

For the sake of the legitimate practitioners in professions the highest standards should be maintained, and in order to do so it is necessary to encourage all true professional and humanitarian instincts, and to frown down any and every thing which has the least tendency to detract from, or drag down the professions from the high standards which they are endeavoring to maintain.

Charlatanry, like gravitation, if allowed to operate unchecked will drag every thing down to one common level.

Of late years there seems to be a tendency, in some instances, to overstep some of the boundaries which codes of ethics place about professional associations.

Whether it is due to fields of labor becoming more limited as the ranks of the profession fill up, or to any other cause, if persisted in the result can not help but be to contaminate and degrade.

No profession is safe if men of prominence will permit or countenance breaches of ethical codes, because the successful practitioners are those to whom all others look for guidance and example, and if these rods turn out to be but reeds, what must the effect of such pernicious examples be upon the remainder of the professions?

To those who have hoped to see the profession of dentistry raised to its proper level it is humiliating to see the ignorance of many practitioners.

What would be thought of medical practitioners who would circulate, recommend or use nostrums, patented or secret preparations upon their patients? And yet how many dentists are guilty of doing this very thing?

How can the dental profession expect general recognition when it will countenance and do such things?

Has it not come to a pretty pass when the most eminent men in our profession will endorse and recommend a secret preparation for alleviating pain, in and about the teeth, when upon analysis such preparation is found to contain arsenic in large and poisonous quantity—where as much as ten grains of arsenic are put into a person's hands without, absolutely, no caution as to its use, and furthermore, under the statement that it is perfectly harmless?

In the first place, what happens to the nerves of teeth to which this application is made?

How can men recommend and sanction the use of their names in connection with preparations of which they do not know the ingredients?

Members of associations which are governed by the Code of Ethics wherein it is distinctly stated that it is unprofessional to recommend or circulate nostrums, will purchase every secret preparation which is put before them if it gives any promise of rendering the operation of extracting less painful.

Suppose a secret preparation to be injected hypodermically, and suppose bad results follow.

How can the dentist, or the physician he may summon, know what to do when the nature of the injection causing the trouble is not known?

Our professions are governed by codes of ethics both written and unwritten. The written portions are generally observed by reputable practitioners, but the unwritten portions are not always so well lived up to.

The remedy, therefore, must be to particularize more and to transfer many portions of the unwritten to the written code, thus drawing the lines more strictly.

Some persons have queer ideas in regard to professional matters.

A certain dental journal instituted the practice of propounding a question each month in regard to dental subjects and requested answers from its readers.

A question in one issue was as to what operation would be best in case the crown of a central incisor should be lost, and the root remain intact in the mouth of a ten year-old-child?

Most of the answers recommended the insertion of a pivot tooth of one of the many good patterns, but one practitioner answered that he would build it up with gold and it would be a fine advertisement for him. Think of the professional aspirations of such a one and how he would, with the basest of motives, prostitute the profession which he represents. Let us ever bear in mind that the mantle of professional standing is woven from the threads of our individual actions.

The strict observance of all teachings of conscience may not always fill the purse so rapidly, but it makes the mind clearer, the heart happier, and the meeting with death, joyous.

American Medical Association.

Section of Oral and Dental Surgery.

THE PRESIDENT'S ADDRESS.

GENTLEMEN:—Dentistry from the earliest period up to the present time has been practiced by medically educated men.

Hippocrates, 460 B. C., speaks of dentrifices and the fixing of the teeth; Celsus, at the end of the first century; Ætius, in the sixth; Egenolff and Ambrose Pare, in the fourteenth. All mention certain forms of treatment of the teeth. John Hunter, 1728, spent much of his time in the study and treatment of the teeth, as well as the study of general anatomy; Fouchard, 1747; Bourdet, 1786; Fox, 1814; Catalan, 1826, all practiced dentistry and also wrote extensively on dental subjects.

The instruments for dental as well as surgical purposes which are to be seen in the museums of Europe, together with the beautiful specimens of Etruscan and Phœnician dentistry now in the possession of Drs. Van Marter of Rome, Barrett of Buffalo, and Taft of Cincinnati, and which are similar to those made to-day, are striking illustrations of the superior ability which men of early times acquired.

About 1826-1830, the practice of dentistry was not wholly in

the hands of an enviable class of individuals. Many were watch-makers, barbers and tinkers of various descriptions, who had taken up the practice for the money that was in it, and were roaming about the country extracting teeth and inserting artificial ones, regardless of honor and ability.

There were, however, a few medical men practicing dentistry, who had obtained a high standing in their chosen profession, and who were anxious to hold their special calling upon an equal footing with other branches of the healing art. Among those, whose names stand out conspicuously in the history of the country, are, Parmley, Brown, Hayden, Tucker, Hudson, Greenwood, Maynard, Trenon, Harwood, Chapin A. Harris and Keep.

We can easily imagine the feeling of these men, who by reason of superior skill and ability had attained high positions in their chosen specialties, when they met in council together to discuss the different subjects relating to the standing of the calling with other specialties, and the qualifications for admission to their Society. It was not until 1839 that any movement was made on the part of these men to elevate their specialty from the slum in which a majority of the so-called practitioners were holding it. It was at this period that one of the most important events in the history of dentistry occurred.

The *American Journal of Dental Science* made its first appearance, with Dr. Chapin A. Harris and Eleazer Parmley as its editors. The American Society of Dental Surgery was organized in 1840, also through his efforts in co-operation. In connection with these movements, it was the ambition of Dr. Harris to organize a dental school in connection with the medical department of the University of Maryland. The practice of dentistry (at this time), with few exceptions, being at a very low ebb, did not impress the faculty of the university as being of sufficient importance to be considered a part of the healing art. The request of Dr. Harris was therefore rejected. Whether this request, at this period in the history of dentistry, would have been rejected by the faculty of any other medical college in this country, or whether it would have been rejected if presented to the

medical department by any other person, or at any other time, we have no means of knowing. Nor do we know much of the general feeling among physicians at that time, in regard to the relation of dentistry to medicine. We only know that the rejection of the proposition gave Dr. Harris new energy, and as a result the Baltimore College of Dental Surgery was established, and that the School of Medicine and the School of Dentistry ignored each other for a time.

Whether the establishment of a strictly dental school, together with the conferring of a separate degree from that of the medical school, has benefited dentistry, it is difficult to say.

The original idea of Dr. Harris, if it could have been successfully carried out, would no doubt have placed dentistry as a calling upon a higher plane than it occupies at the present time. His idea was that by this union the dental department, being a legitimate specialty of medicine, would thus draw support from the medical profession at large. Be that as it may, dentistry, forced upon its career with a new degree, had, with very little aid from the medical profession, to work its own way as best it could. This incident marked one of the greatest epochs in the history of our calling.

Like the young man, sent away from the parental roof, dentistry has grown strong in some of its features. The Baltimore College, owing to the talent of unexceptionally able men, flourished, and men of ability were graduated, who practiced dentistry in different parts of the country, with the new degree of "Doctor of Dental Surgery." So successful was this college, that other schools of dentistry were organized shortly afterward, and these in their turn became as successful as the mother school.

From the first, graduates of dentistry who were ambitious to excel have never been satisfied with a dental degree only, and many men, anxious to acquire higher attainments, have taken the medical degree also. Many of the graduates are anxious to acquire a broader and more liberal education, but time and purse do not permit it.

Dental students have been ambitious to obtain the highest acquirements, and, in many cases, have not been satisfied with

the course of instruction in our dental colleges. The dental faculties have been obliged to so shape their course, and so far as possible have made arrangements with medical colleges, that by taking one additional course, their students could receive the medical as well as the dental degree. And there has been a desire on the part of both medical and dental graduates to draw the medical and dental schools together, as evidenced by the fact that medical men are anxious to secure positions in the dental colleges. This desire may not have been outwardly intentional on the part of some, but the relations of one to the other are so close that scarcely any distinction really exists. I have frequently heard medical men, those who have had experience as teachers in both colleges, say that they prefer to lecture to dental students.

The first dental college to unite with a medical college was the St. Louis college. The St. Louis Dental College was founded in September, 1866, and the first announcement stated that the students will have the benefit of the lectures in anatomy, chemistry, physiology, materia medica that are given to the matriculants of the St. Louis Medical College, the first college to take the step in this direction.

Following this, in 1867, the Harvard Dental School was organized in connection with Harvard University; since that date most of the universities in this country have established dental departments. The older dental colleges are uniting themselves as rapidly as possible to universities, so that at the present time nearly one-half the dental colleges are departments in the different universities. Ever since the formation of the Massachusetts Medical Society, in 1781, it has had members practicing dentistry; and the Suffolk District Medical Society, which is a part of the Massachusetts State Medical Society, created a section in 1866 called No. 5, for "Surgery and Dentistry;" this is now a quarter of a century old. In Massachusetts, forty or fifty years ago, no reputable dentist would take a pupil, unless he would engage to take a full medical course, or had already graduated in medicine. Scarcely a dentist who has been in practice for twenty-five years: and who has sons growing up, is not anxious

to have them to take a full course in medicine before taking up the subject of dentistry, which they regard as a specialty in medicine.

This brief history has been given to show that our best educated early practitioners in dental surgery have always regarded it as a specialty in medicine rather than an independent profession. Dr. Harris so regarded it, and he was the founder of our first dental college, and established this college for the reason that he was not permitted to organize a dental department in a medical college, as he preferred to do. This is evidenced from his inaugural address at that time.

"Allow me," he said, "to observe, however much of interest or curiosity the establishment of this institution may have awakened, it constitutes an era in the history of a most useful and valuable department of medicine."

In speaking of the empiricism that had up to that time existed in the practice of dentistry, he says: "I feel bound to the public and to my own reputation, to denounce the empiricisms that have, and do still exist in the department of medicine." Again he says: "It is to be hoped that the day is not far remote when it will be required of those to whom this department of surgery is intrusted, that they shall be educated men."

Although dentistry apparently seceded from the mother profession in 1840, it was so near akin to it, that with few exceptions, there has been a yearning on the part of the dental graduates to return to the parental roof. Many graduates of dentistry have availed themselves of the opportunity, and the numbers are increasing every year.

With the convening of this meeting, the Section of Dental and Oral Surgery in the American Medical Association enters upon the tenth year of its existence. At the session of the American Medical Association held in Richmond, Va., 1881, Drs. W. W. Allport, J. W. Brophy, E. S. Talbot, Chicago; Dr. J. L. Williams, Boston; Dr. G. L. Goodwillie, New York; Dr. Hauxhurst, Grand Rapids, Mich.; and Dr. G. L. Parmlee, Hartford, Conn., practitioners of dentistry, holding medical degrees, presented themselves as delegates from local medical societies, for

the purpose of organizing a Section on Dental and Oral Surgery. Each gentleman constituted himself a committee of one to champion the movement among the members of the Association who were in attendance. They found no opposition whatever; on the contrary, the oldest members, and especially the ex-Presidents of the Association, were heartily in sympathy with the movement, and were anxious to assist in bringing it about. At the morning session Thursday, May 5, Dr. Samuel D. Gross of Philadelphia, asked for a suspension of the regular order of business, which motion was granted. He then moved that the By-laws of the Association be so amended as to create another Section, to be known as No. 7, entitled Dentistry. The motion was favored by Dr. Sayre, of New York, and Dr. N. S. Davis, of Chicago, and was adopted. The object of suspending the rules at this time, was for the purpose of creating the section, so that we might organize and commence work at that session; the members who were to constitute the Section being prepared with papers for that purpose. Dr. Toner, of Washington, objected, saying that he was not opposed to the Section organizing and commencing work this year, but he did not wish to make a precedent for future Sections. It was therefore decided that it could not go into operation until the next year, when, according to the Constitution and By-laws of the Association, dentistry was officially recognized by the American Medical Association.

The effect that this movement produced upon the so-called dental profession was, in one respect, magical. Before this period, scarcely a meeting of dentists convened, without having upon its programme a paper upon the subject of "Is Dentistry a Specialty in Medicine?" Strange as it may seem, many took the ground that it was not, ignoring the fact that it had been practiced as such until, and by some within, the last forty years; that many of its branches were taught by medically educated men, and also that we were practicing on a part of the human body. Since this period, scarcely a paper has been written upon this subject. The action taken by the American Medical Association, as well as cases which have been lately decided by the courts, have legally settled the question forever.

Fortunately, there is little opportunity for wire-pulling or scheming for political preferment in our Section, for it is well known that the majority of our members prefer that the offices be given to others rather than to themselves. Thus the time devoted to the Section has been entirely given up to the reading and discussion of papers, and in no dental society in this country, has there been presented such an array of scientific papers as has been given in this Section. The men who have taken part in the meetings of this Section have in most cases been of exceptional ability, and whose standing in the specialty has added dignity to its meetings. The influence of the work in this Section upon the medical profession has brought about a marked change in the Association.

The Section of Dental and Oral Surgery is recognized as a part of the whole, like other Sections, and its members exert as much power in promoting the welfare of the body, as do the members of other Sections. Indeed, the members of this Section have had the pleasure of listening to papers and discussions at its sessions, by some of the ablest men of the Association, which not only added interest to its meetings, but also showed that the members of the Association are in full accord with the specialty as a part of the general body.

Since the organization of the Section, editors of medical journals have become quite liberal, as well as more intelligent, in their discussion of dental subjects, and have taken more interest generally in the affairs of dentists; and physicians have accepted invitations to read papers before local dental societies, and dentists have read papers before medical societies. This shows the interest which an interchange of thought is developing, by the union of the different branches of the healing art. Since the formation of this Section, through the efforts of W. W. Allport, teaching in regard to dental diseases has been established in many of the medical colleges of Chicago, which example has been followed in other colleges of the country. One of the arguments used by some dentists against the theory that dentistry is a specialty in medicine, is that medically educated persons know nothing of dentistry, or those diseases of the oral cavity which re-

sult from diseased teeth. Medical men could hardly be expected to know much in regard to the lesions of the mouth, they having received no special instruction upon this subject. The action taken by Dr. Harris and the medical faculty in 1840, no doubt impressed the faculties of other medical colleges with the idea, that lesions of the mouth resulting from diseased teeth were of little consequence, and therefore knowledge of them of little value, to the general practitioner.

Now however, medical men, as well as dentists, know that many lesions of the body are the direct outcome of diseased teeth. In my capacity as a dental teacher in a medical college, I have instructed the students for the past eight years that (in my opinion) many of the diseases of the body, such as pneumonia, consumption, typhus and typhoid fever, eruptive fever, suppuration of the throat and tonsils, aphthæ, ulcers, etc., were the outcome of a collection of micro-organisms in the mouth, and decay of the teeth. My reasons for this theory were that, in many instances in my practice, I have observed patients entirely recover from the supposed consumption and other bodily ailments, after the mouth has been put in a healthy condition. In one case a lady gained 35 lbs. in weight, a young man gained 13 lbs., and a young girl who had been treated for six months for consumption, and was supposed to be on her death-bed, entirely recovered after having a number of roots of teeth removed and tonics administered. This theory has been confirmed by Professor Miller, of Berlin, who has observed the bacillus tuberculosis and the bacilli of other diseases in the mouth. In his work upon "Micro-organisms of the Human Mouth," he shows how many diseases of the body are produced by pathogenic bacteria by inspiration, absorption, and being taken into the alimentary canal, which have accumulated in the mouth. To-day many of the medical colleges of the country have a chair upon dental and oral surgery, and the students are now taught dental anatomy, physiology and pathology. Of the six medical colleges in Chicago, there is not one that does not provide for instruction in these branches by some dentist. No medical student should be allowed to graduate without some knowledge of the

laws of diseases, and their effects on the mouth and teeth, and no medical college to-day can be considered complete without a chair upon this subject. In view of the fact that able practitioners of dentistry were debarred from becoming members of the American Medical Association, on the ground that they did not belong to some local medical society, at a meeting held in Chicago, in June, 1887, Dr. Allport conceived the idea of having a resolution passed, which should admit as members men of ability who held the D.D.S. degree.

With the assistance of Dr. N. S. Davis, the following resolution was presented and unanimously adopted by the American Medical Association, 1887 :

Resolved, That the regular graduates of such dental and oral schools and colleges as require of their students a standard of preliminary or general education, and a term of professional study, equal to the best class of the medical colleges of this country, and embrace in their curriculum all the fundamental branches of medicine, differing by substituting practical and clinical instruction in dental and oral medicine and surgery, be recognized as members of the regular profession of medicine, and eligible to membership in this Association, on the same conditions and subject to the same regulations as other members.

In the following year, 1888, the Chicago Dental Club, having adopted the Code of Ethics of the American Medical Association, sent the following members to the Association, as qualified under the resolution: W. W. Allport, A. E. Baldwin, John Marshall and E. S. Talbot; and since that year, 1888, the Dental Club has continued to send members to the Association. The adoption of this resolution by the representative society of the country, would seem to show that the medical profession had done its full part to recognize *properly educated* dentists as legitimate specialists in the practice of medicine. The question of relationship has now been definitely settled forever, and the only question now remaining is this: What proportion of dentists, in the future, will so qualify themselves to practice dental and oral surgery, that they will have the right to be classed as medical specialists, the same as surgeons and ophthalmologists, and

entitled to recognition in the Association, in accordance with the letter and spirit of the resolution referred to?

Professor Garretson, in a letter to me, states that in the Philadelphia Dental College, which is in connection with the Medico-Chirurgical College, the following distinction is made between the course conferring the D.D.S. degree and the one conferring the M.D. degree, or both: On matriculation, the student signifies his intention to take the M.D., or a dental degree, or both. If he chooses the course conferring the dental degree, he is taught only such branches as pertain to the treatment and filling of teeth. On the other hand, if he signifies his intention to take the M.D. degree, or both, he receives instruction in the branches that will fit him to practice oral surgery, or oristry, and medicine, as well as dental surgery. The professional position that the educated dentist occupies at the present time, could not be improved upon, as is true of the position he holds in society. His relations with the mother profession are as free and broad as the air of this great American continent. It now remains for him to decide whether he will be satisfied with little education—with an education that permits him to see only faintly, and to realize not at all, the possibilities of his profession, and renders him content to grope along in the lower stratum of his practice, seeing and wishing nothing higher, possessing only narrow views in regard to his calling, attending no societies, or only those whose time is given to discussions on such subjects as red rubber, amalgam and root filling, extraction of teeth and insertion of artificial dentures. If he is content with these things, and looks upon the profession of dentistry as a trade, merely as a means of subsistence, with as little expenditure of power and thought from himself as possible; will he rest satisfied with this position, or will he take a broader view of the situation, looking at dentistry from all sides, thinking the subject worthy of all his power, all his talents and ability, striving to make it equal to the mother profession, and educating himself so that he may stand upon an equal footing, shoulder to shoulder with the best medical men in the country.

Some one may say that he has not the time nor the money for

this. In answer to this, permit me to refer to a Professor in the University of Berlin, to show that it is possible for a poor American boy to *educate* himself for the practice of dentistry.

His worth was recognized by the faculty of the University of Berlin, and a position was offered him as Professor in the University, an honor that has been accorded to no other American. And during my late visit to Berlin, it gave me great pleasure to observe the respect shown by the faculty of the University, Government officials, as well as the highest officer in the International Medical Congress, to Professor W. D. Miller. This example is only given to show that to him who works in the right direction, all things are possible, and the higher he places the limits of his attainments, the greater will his attainment be.

Let the dentist be a scientist, and not a mediocre and narrow-minded tradesman. Let him select a new mark every day, at which to aim his energies and talents, and let that mark be ever ahead, and ever on a higher plane.

Ohio State Dental Society.

The prospects for a large and profitable meeting at Columbus, Dec. 1st, 2d, 3d, are most flattering.

The Executive Committee have spared no pains to this end.

The Sessions will be held in the new and magnificent "Hotel Chittenden," where special rates and conveniences are offered for all in attendance upon this occasion.

Papers will be presented by Drs. C. M. Wright, J. Taft, H. A. Smith, G. H. Junkerman, W. Taft, E. H. Roffensperger, J. R. Callahan, F. W. Sage, J. E. Robinson. Also Drs. A. W. Harlan, of Chicago; A. O. Rawls, of Kentucky; W. S. Elliott, of New York; and Geo. W. Melotte, of New York.

Clinical demonstrations of cases will be a conspicuous feature of the meeting, among which will be, "Glass fillings," "Inlays," "Gold tippings," "Combination fillings," "Crown and Bridge work." Also exhibits of electrical appliances and other auxiliaries for dental practice.

The meeting opens promptly at 9 A. M., Tuesday, Dec. 1st.

A banquet will be given Wednesday evening at "Hotel Chittenden," to which every member and foreign guest is cordially invited. Programs will soon be distributed to the profession by mail.

Every reputable dentist should attend this meeting, where he will be made welcome.

OTTO ARNOLD, *Sec'y.*, Columbus.

EDITORIAL.

A Peculiar Case.

Mrs. P——, about two years ago had a left inferior first molar crowned—gold crowned. The tooth was so much decayed at the time of the operation, that this course was thought preferable to any attempt to fill it. The pulp still living, not exposed. The dentine in the cavities of decay somewhat sensitive. The gold crown being set had such contact with the upper molar, that it was necessary to dress it, and doing this, at two points the crown was cut through, and the cement beneath exposed at only a small surface. Repair was not then made of these points, but they were permitted to remain with the cement exposed; and either for want of attention on the part of the patient or the dentist, the case has gone along in this condition for the time above specified; the openings through the gold meanwhile becoming considerably larger by wear. During the last two or three months there has been an increasing sensitiveness of the tooth in mastication, so that, for the last six weeks or more, it has been impossible to masticate upon the tooth. There was no periosteal trouble, striking upon the tooth causing no pain, but the moment any attempt at mastication upon the tooth was attempted, unbearable pain occurred. The cement seemed apparently in good condition at the openings. The annoyance became so great that the removal of the crown was decided upon. This was done a few days ago. The crown was very firmly in its position, so that it was cut open on one side, and simply stripped

off of the tooth and the cement which held it in its position; this being done, examination with the instrument revealed the fact that the cement opposite the openings of the crown was somewhat softened, though not wholly disintegrated, so that moisture penetrated it, and so it afforded but little if any resistance to pressure upon it. Upon removing this it was found that the dentine beneath was beginning to decompose, and was exceedingly sensitive, so that the mere contact of the instrument with the surface caused excruciating pain. A few thrusts of the sharp excavator cutting at this affected portion, almost entirely relieved the sensitiveness; and when all the dentine affected by decay was removed, there was scarcely more than the normal sensitiveness of the dentine. The exposed surface was thoroughly dried, carbolic acid applied, it was then covered with a hard sticky wax, and the patient dismissed. An examination after twenty-four hours revealed the fact that there was scarcely a vestige of return of the former trouble, and masticating upon that side gave no pain, though the patient was somewhat timid about it. This case had been examined by two or three dentists without any conclusions as to the cause of the trouble, indeed, it did appear obscure, but after going to the bottom of the matter, it was very clear. By the influence of moisture and mastication, the cement inside of these little openings, had softened enough to admit moisture and the chill of cold fluids, which caused great pain, and sufficient movement of the cement to irritate the sensitive dentine beneath.

Now, the teaching of all this is, never permit an opening through a gold crown upon a tooth or root having a live pulp, though it may apparently be secured by the cement within the cap; usually, if such a little opening is made, by dressing for proper occlusion the breach can be repaired by simply dressing out enough to receive a little gold filling, in that way such openings can be effectually stopped. Another lesson is taught by this case, never rest satisfied with an obscure case without making thorough examination. It is well to attempt very little treatment, and in most cases none at all, when one cannot reach to the bottom of obscure cases.

Dental Meeting.

The twenty-third annual union meeting of the Fifth, Sixth, Seventh and Eighth District Societies of New York State, was held in Buffalo on the 27th, 28th and 29th of October. These union meetings, being held annually, enable the different district societies to keep in touch, and to maintain an acquaintance and friendship that is not only pleasant but profitable. Quite a number of papers were read and freely discussed. The first one "Treatment and Destruction of the Pulp," by Dr. Frank French, of Rochester. The subject was discussed by quite a large number of those present. The second paper, on "Antral Abscesses," was read by Dr. M. O. Cooley, of Niagara Falls. The third paper, on "Cause and Effect," was read by S. B. Palmer, of Syracuse; this also elicited an interesting discussion. Quite an exhaustive paper on "The Mouth and Connecting Cavities in Relation to Speech" was read by Dr. A. L. Benedick, of Buffalo. This paper was illustrated with charts—a skull and various anatomical preparations. A consideration of this paper proved very interesting.

The forenoon of the second day was wholly occupied with a series of very interesting clinics and demonstrations including Crown and Bridge Work, Special Methods of Filling and Treatment of Exposed Pulps. Quite a number of new and interesting points were brought out in the morning's clinic. The afternoon session was devoted to reading papers, the first of which was one by Dr. Barrett on "Examining Boards vs. Dental Colleges." The paper elicited considerable discussion in which quite a number of members participated. Following this was a paper by Dr. W. H. Bergtold, of Buffalo, on "The Mouth as a Source of Infection." Many interesting facts were presented in the paper. After this a third paper on "Immediate Root Filling" was read by Dr. R. H. Hofheinz, of Rochester; those who spoke on the subject concurred in the main with the positions taken by the paper.

The annual dinner of the convention took place at the Hotel Iroquois, at 8 o'clock in the evening, with all the usual accom-

paniments of a very fine spread, with quite an elaborate list of toasts, responses and a good social time generally, the banquet closing at the good and seasonable hour of eleven o'clock.

The next morning at nine o'clock, a session was held, at which Dr. I. C. Curtis, read a paper on "The Relative Value of Cohesive and Non-Cohesive Gold, and a Combination of the Two;" this paper elicited quite an extended and general discussion. Dr. L. G. Curtis, of Syracuse, read a paper entitled "Where Dentistry looks over into Oral Surgery." This paper was also freely discussed. Dr. W. F. Lowe presided over the meetings with marked dignity and success. For the very thorough manner in which the arrangements were made and executed, the body was in a large measure indebted to Dr. C. S. Butler, of Buffalo, and his associate committee-men.

An invitation was extended by the Sixth District Society to the other societies, to hold the next annual meeting in Binghamton; and this no doubt will be the place of holding the next meeting. The union meetings of these District Societies serve as a bond of affiliation, and as a means of acquaintance and good fellowship, the value of which it is hard to estimate. There were quite a number of dentists from other States present, all of whom expressed themselves as delighted with what they saw and heard, and the only regret that was heard was, that more visitors were not present to enjoy the pleasures of the occasion.

Bibliographical.

A Short Manual of Analytical Chemistry, Qualitative and Quantitative — Inorganic and Organic. Arranged on the principle of the course of instruction given at the South London School of Pharmacy, by John Muter, M.A., Ph.D., F.R.S.E., F.I.C., F.C.S. First American from the Fourth English Edition, edited by Claude C. Hamilton, M.D., Ph.G. Philadelphia; published by P. Blackiston, Son & Co., 1012 Walnut street, 1891.

This work is a very valuable one to the Analytical Chemist. This edition has been but slightly changed by the Reviser, except so far as seemed to him important, or even compulsory, by the

United States Pharmacopœia, except the chapter on Urine Analysis, which has been enlarged and illustrated.

The following are some of the subjects embraced in the table of contents, viz :

PART 1.—QUALITATIVE ANALYSIS.

Chapter 1.—The Processes Employed by Practical Chemists.

“ 2.—Detection of the Metals.

“ 3.—Detection and Separation of Acidulous Radicals.

“ 4.—Qualitative Analysis, as applied to the Detection of Unknown Salts.

Chapter 5.—Qualitative Detection of Alkaloids, Glucosides, and certain Organic Bodies used in Medicine, with a General Sketch of Toxicological Procedure.

PART 2.—QUANTITATIVE ANALYSIS.

Chapter 6.—Weighing, Measuring and Specific Gravity.

“ 7.—Volumetric Quantitative Analysis and use of the “Nitrometer.”

Chapter 8.—Gravimetric Quantitative Analysis of Metals and Acids.

Chapter 9.—Ultimate Organic Analysis.

“ 10.—Special Processes for the Analysis of Water, Air and Food.

Chapter 11.—Special Processes for the Analysis of Drugs, Urine and Urinary Calculi.

Chapter 12.—Analysis of Gases, Polarisation and Spectrum Analysis.

The above will give an idea of the scope of the work. There are a large number of illustrations of Apparatus, for the various analytical processes, all of which are well described. The work is so arranged, and the subjects so well presented as to be a great aid in the work of the Analytical Chemist; every one engaged in this department of work would be aided by consulting this work, and especially those who are being initiated in the work of this science. It is well written, and presented in an attractive form.

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Questions and Answers on Dental Pathology and Therapeutics, Dental Embryology, Hygiene and Care of Children's Teeth.

BY GUSTAVUS NORTH, A.M., D.D.S.

In the preface the author says, "This book will include the outlines of the questions and answers of about five lectures delivered by the author, on Dental Pathology and Therapeutics, Dental Embryology, Hygiene and the Care of Children's Teeth. This work has been prepared especially for students, and the questions and answers are plain and to the point."

This work is divided into three parts, with questions and answers pertinent and directly to the point. They are so arranged as to carry the student along, upon each subject, in a very efficient and profitable manner. It is quite elementary, as it should be, upon the subjects and for the purpose for which it is designed. Many practitioners can consult it with profit, but its greatest value is to the student who is beginning the study of these branches. The subject of Temperaments is well analyzed, and really constitutes the Fourth Division of the Work. We can most heartily recommend this little work to every Dental student, as one that will be to him many times the value of its cost. It can be obtained of the author, whose address is Springfield, Iowa.

"Three thousand Questions on Medical Subjects," arranged for self-examination with the proper references to standard works, in which the correct replies will be found. Published by P. Blakiston, Son & Co., Philadelphia, Pa.

This house is doing a great service for the medical profession, and for the dental as well, by the issue of quiz compends and such books as the one here indicated. The following from the Publisher's Preface will give a good idea of the scope and value of this little book. "It has been prepared by a medical man, a writer and teacher of experience, with special reference to the actual wants of the medical student. By its help the student can successfully quiz himself on all important branches,

or review any one subject in which he feels himself to be particularly deficient. As a rule, the questions have been selected with regard to their bearing upon the practice of medicine and are those most likely to be asked in the quiz class. At the same time, there are many unusual ones, thus giving the student a wide range of thought and making him generally conversant with all points connected with the matter in hand." Unlike many other quiz lists or question books, this makes reference to some standard text-book for the answer to every question. These text-books are the leading ones and such as every medical and dental student must have in their course. The following subjects are embraced in this work, viz : Anatomy, Physiology, Materia Medica, Chemistry, Practice of Medicine, Surgery, Obstetrics, Gynecology, Diseases of Children. These three thousand questions are contained on one hundred and forty-four pages, in small pocket form and interleaved throughout for notes or references. And we may say here confidentially to students of medical science or practice in any department, that the publisher will send this book free upon the student's sending ten cents in postage stamps to cover cost of mailing—certainly a very liberal proposition.

PREPARATIONS for the "*World's Columbian Exposition*" are being pushed forward with astonishing energy and rapidity. Thousands of men are engaged, and structures spring up as if by magic. When completed it will excell anything of the kind the world has ever seen, and notwithstanding this, so great is the interest of all civilized nations, that the present indications are that the demand for space and accommodation, will far exceed the supply. *More anon.*

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COMMUNICATIONS.

The Genesis of the Contour Filling.

BY GEO. S. ALLEN, D.D.S., OF NEW YORK, N. Y.

Read before the Dental Section of the American Medical Association.

So generally accepted is it by the profession at large that the contour filling represents the highest development of the art in conservative dentistry that it is as much as a man's reputation is worth to say a good word for the old-fashioned face filling of years gone by. Practice and precept, it is true, do not always follow the same road; still it is a healthy sign of growth to see the highest ideal kept well in the foreground in all our discussions and writings. No subject has been so well and so ably handled by the wise men in our profession, as the one that presses the claims and advantages of contour work. So true is this that he who would start on the hunt for one single brand new thought or idea on the subject would have a weary road to travel and have little to show for his time and trouble when he came to foot up his returns.

At the best he could only hope to attract attention by giving some more beautiful or apt illustration to some well-worn idea or principle that had already become the common property of all. So I turn aside from this uninviting field of labor to another—one more practical, and I hope, therefore, more interesting—and will confine my thoughts entirely within the lines marked out by the title of my paper: The Genesis of the Contour Filling, or how it is made. And this I do for the further reason that so far as I know the cardinal rules to be kept in mind, in this kind of work, have never been presented to the profession in short compass.

Even within these lines I doubt much whether I can give you much that is new. Still, I think a little less attention has been given to practical instruction in building up the contour filling, than to preaching about its many advantages and beauties. This close attention to one thought will also preclude entering into any discussion as to when and where to attempt the full restoration in the shape of the tooth under treatment. Individual judgment largely controls practice in all cases, and the wise dentist, like the wise physician, always adopts the elective motto. The wisest short law I have ever seen pertaining to this point came to me in a private letter, from an acknowledged authority on the subject, and sums as follows :

“ To understand me more completely I would state that I have not, for a considerable time, been in favor of inserting very large gold fillings in this manner, and for the reasons you have given in your paper, that the structure and elements of the tooth are not such as to promise a durable retention of the mass of gold by the weakened tooth. But for medium-sized and small cavities I am equally convinced, from long experience and observation of my own, and the work of others, that no other method offers the same degree of permanency or usefulness.”

By so doing he places himself in the position of the philosopher who said he always obtained what he wished for, and added, sotto voice, “ I take good care never to wish for what I can not obtain.”

Taking up then the building, or making, of a contour filling, a threefold division of the subject naturally presents itself.

1. The preparing of the cavity.
2. The placing therein of the filling material, and
3. Finishing and polishing the completed work.

Now a good deal that may be said about the preparing of the cavity will apply to the simpler and easier operations of face and crown fillings, but this one wide difference must be constantly kept in mind, viz.: as the size of the cavity increases the difficulties and dangers increase, not proportionately, but in a geometrical ratio, and therefore a relatively greater care and attention must be given to all the details of the longer and more

complex operation. A few quick, sharp cuts will suffice for preparing a simple crown cavity, but they will fall far short of filling the bill in any case that we propose to consider this evening.

As the architect or engineer sees his completed work, before the actual is even started, so should the dentist be able to discern the full size, shape and figure of his proposed restoration, and each step should be so carefully planned and made to fit the next, that in the completed whole nothing may be wanting.

Very much of success depends on bearing this safe rule in mind. In fact, it is difficult to conceive how one can plan wisely unless he does. On the size and shape of the cavity, on the proper distribution of retaining undercuts or pits, so as to protect and strengthen weak walls and throw the burden on strong ones, much good judgment can be placed, and the writer is convinced that just here may be found the cause of many failures. Undercuts are made too deep, and retaining pits made in such positions or manner as to either weaken the tooth or endanger the pulp. Deep undercuts, though they make operations easier, are seldom called for, and endanger the completed work: and they do this in two ways: 1st, by weakening the walls of the cavity, and 2nd, by making real obstacles to forming a homogeneous, well-packed filling.

The deep undercut, though it holds the great bulk of the gold in place, is itself difficult to fill. To do so well takes much time and care, and the use of exceedingly small pluggers, and this they may not receive. Where all the walls of a cavity are standing, and the face of the tooth adjacent to the cavity is perfect, the walls of the cavity should be left as nearly parallel as possible and no pits of any kind made. In fact, nearly parallel walls should be the rule, and pits always avoided, when possible.

The real study and judgment is called for in those cases where the natural face or faces of the tooth have been lost either by decay or the too free use of file and chisel, for, as will be referred to a little later on in speaking of packing the gold, a point of considerable interest and value arising in these cases, as to whether the filling should be allowed to overlap the walls of the

cavity and simply lie against the face of the tooth on the outside or shall be made continuous with the walls of the cavity, and bulge only from the cavity itself.

Believing fully, as I do, that overlapping gold is gold in a dangerous position, I would strongly advocate such a preparation of the cavity as will minimize this danger even if by so doing the full realization of our ideal in contouring be not carried out.

It is a sort of belief with many that in all cases the packing of gold should be commenced at the cervical wall, or base of the cavity. This is a mistake. Oftentimes more certain and rapid work can be done by starting the filling back in the grinding surface, and building downwards. And so this point should be considered and the cavity shaped accordingly.

As the enamel forms the edges of most large cavities its proper management is a point of interest. Long ago I advocated, in a paper read before the New York Odontological Society, the complete removal of the thin edge of the enamel often found at the neck of the tooth, and this I did for the double reason that it was only slightly adherent to the dentine, just there, and so liable to split off during the operation of filling, and secondly, it was very difficult to make a smooth edge on it.

Since that date I have seen no reason to alter my judgment in respect to this method of practice, but have had many confirmatory ones brought to my notice. Leaving the thin edge leaves a weak spot, and that is bad.

A final point to observe in shaping the cavity consists in making the edges smooth and polished, and just here the great advantage of the dental engine, with its rapidly revolving bur, comes to the front. No hand instrument, no matter how much care is used, can compete with it. A sharp, well-cut bur will do in a few minutes, far more effective and perfect work, than the sharpest hand instrument can in a far longer time. If, in addition to the bur, the edges are polished with the wood point armed with powder, or still better, with an uncut, round, soft iron point, armed with diamond dust, perfect edges can be quickly obtained.

We come now to what many will think the most important

part of the work, and the one in connection with which probably more science and skill can be employed than in any other. Two great essentials are to be here considered. The perfect adaptation of the gold to all the walls of the cavity, and the accomplishing of this with a minimum amount of force, and a third may be added ; that the filling may be made homogeneous and solid throughout.

Imperfect adaptation makes failure almost a certainty and undue force (and by this I mean any amount of force over and above that required to condense the gold) is almost equally fatal in the end. How then, first of all, shall we proceed to make the gold fit the cavity ?

The quality in gold that we make use of in building up a filling of this character, viz.: its welding property when pure and freshly annealed, is not one that can be trifled with. It is our servant if we handle it rightly ; our master if we slight it in any particular.

In skilful hands pure gold is almost as pliable and obedient to the touch as the clay the sculptor uses to fashion the child of his fancy, but there is this difference : the clay can be worked over and over again, a little added here and as much taken off there, and so long as it is kept moist it responds to the brain back of it ; but not so with gold. Place a bit in position in such a manner as to ensure perfect contact with that already in place and the union will be perfect, and it becomes a part of it, but you can not try a second time ; the first is the only one that will be allowed you ; if it does not take its proper position at once you may be sure that something is wrong and you can not make that wrong right by using extra force. The moment that is done the evil that resides in the metal, and that heretofore has been dormant, manifests itself. It becomes stubborn, brittle and cranky, and will not do any thing you want it to do, but will persist in doing every thing you most object to ; like some individuals it has a dual nature and we must beware how we call out the perverse side.

Then again the amount of force used must always be proportionate to the size of the pledget to be packed, and exactly, too ;

not enough force fails to insure solidity, and too much has a tendency to bring out the harsh qualities alluded to. As the pledget must be packed in the exact position in which it is first placed, and can not be moved from it, great care and good judgment are required to avoid pits, and to make certain that the surface is kept even, for it is much more difficult to fill a pit or sharp depression than to continue a flat surface; and the permitting of pits near the walls of the cavity is especially to be avoided for the extra force necessary to fill them too often weakens the walls or even crumbles the enamel. So the rule to be observed is to, as far as possible, carry a uniform surface upwards, and as the filling grows keep the marginal portions a little in advance of the centre.

Another advantage that results from this plan of procedure is that it makes more rapid work possible in that you can use larger points. A pit or depression near the walls necessitates the employment of small points, for the point in use must always be a trifle smaller than the pit to be filled. This suggestion is by no means an unimportant one and a little thought will soon convince one of that fact. The correct packing of gold is, in truth, an art of itself and requires an educated touch, and correct eye.

The celebrated painter, Meissonier, always took the greatest care of his hands, keeping them scrupulously clean, and even tender by the constant use of gloves. He said that a painter's touch must be most sensitive and delicate. So it should be with the dentist and he ought to be just as careful and particular. Long finger nails, or callous finger tips, are to be avoided.

Where to start a filling is a matter of some moment. It is generally commenced at the cervical wall, but cases frequently occur where the commencement may be made with advantage back on the grinding face of the tooth and the filling carried backward or forward to the floor of the cavity. An advantage frequently arises from this method, for by carrying the gold along the sides of the cavity towards the bottom any movement of the gold is avoided, and pits to accomplish this same purpose are not required. Any one who has not tried this plan will be astonished to find how frequently it facilitates the operation.

Deep pits, in the writer's opinion, are great nuisances and are only admissible when other means fail to accomplish their purpose.

What has been said regarding the matter of making a filling leads naturally to a consideration of the points to be used, their shape and the best methods of applying the force necessary for condensation of the gold. If the gold is to be built up layer by layer in a series of plains, the thought naturally suggests itself that the shape of the points should conform to that of the plains themselves, in fact, should have flat surfaces, and this will be found to be a correct statement. The late Dr. Varney was the first to incorporate this principle in a series of pluggers especially intended for packing cohesive gold, and the set made from patterns furnished by him to this day stand unequalled for their especial adaptation for contour work. The points all have plain surfaces and are very finely and evenly serrated. Slight modifications only have been made in them since his day, so completely did he work out his theory in steel.

A round point may have some limited utility at times but never can be relied upon to any extent. It would be a matter of the greatest difficulty to make a large, uniformly-packed filling by their use only. Deep serrations are faulty in that they cut the gold and require extra power to force the gold into a solid.

How to apply the requisite pressure is now to be considered, and possibly it is the most important consideration of all—how to apply just enough force for the purpose, and to apply it quickly, uniformly and evenly; how to apply the “quantum-sufficit” and no more, and in a manner to give your patient the least discomfort and lighten the labor of the dentist is a serious problem.

I take it that few would seriously consider hand-pressure alone as offering the best solution. Let alone its being the most laborious and tedious method it rarely produces perfect work. We can not get along without it especially in commencing operations but good judgment and good work alike demand that it be supplemented by some means more under control, more direct in

its action and developing more power, and this can only be done by resorting to some one or more of the various devices which the ingenuity and thought of the profession has placed in our hands the utilizing the power of momentum, or in plainer terms, the mallet.

The late Dr. Atkinson, whose memory we hold in respect, and whose loss we deplore, was probably the first to suggest this means of obtaining the desired end and in his hands and the hands of his followers, the hand mallet was made to do most excellent service, but it was soon found that it offered only a partial solution of the problem; to mallet for oneself was awkward and oftentimes impracticable, and the impossibility of making two brains work in harmony made the assistant malleter as often a nuisance as a help, and careful operators soon gave it up as being impracticable. The automatic mallet, in some of its various forms took its place, and so well did it do its work that it will probably always hold its own and retain a well-deserved place in the dentist's outfit. Then followed the electric mallet, a step in advance, and a big one, but it had many inherent defects that greatly impeded its general adoption.

To-day the mechanical mallet is slowly but surely coming to the front, and the writer feels certain that the day is not far distant when it, in some of its modifications will supercede all others, and for reasons that will now be stated as clearly as possible.

Let it be premised that the more closely the force required can be made to simulate hand-pressure the better it will be, in all ways safer for the tooth and easier for the patient to bear. Now this is just what the mechanical mallet does, in truth it is pressure intermittently applied, and in no wise is it to be likened to the hammer-like blow that is given either by the hand mallet, the automatic or the electric.

Take a look at the mechanical mallet in operation, and notice how it works. You will see that the point is placed in contact with the gold and gently pushed forward. This throws the further end of the mandril holding the point back, so that the lug or rounded bit of steel with which the rapidly revolving wheel is

armed comes in contact with it and it is pushed forward, and this is repeated with every revolution of the wheel, so that from 1,000 to 3,000 impulses may be given to the point every minute, the direction, number and power of these impulses being perfectly under the control of the operator.

In the mallet I employ, which is the Bonwell mallet, as modified by Dr. S. Perry and Mr. Weber, there are 80 threads to the inch in the adjusting screw, and 40 notches in the collar, so that a movement of the collar one notch brings the plugger mandril 1-3200 of an inch, or the thickness of the diameter of a human blood corpuscle, nearer to or farther away from the revolving wheel; and yet, small as the distance is, it is distinctly appreciable to the operator and the patient alike. Does it not look reasonable that a forward push movement of the point, through these small distances, must be comparatively safe and can be made to expend itself in the packing of the gold, and the packing only?

A valuable point I have observed is that where the serrations of the point are rightly made, that is, having one side longer than the other, the point travels over the surface of the filling and has simply to be guided by the operator, so that if placed near the center of the filling, it will move over the face of the gold in just the direction and manner required. Thus it becomes the easiest thing in the world to pack towards the walls of the cavity. The gold is plastered in position, as it were, easily and rapidly.

The kind and quality of the push can be regulated in several ways other than by the adjustment collar; by increasing or diminishing the speed of the motor, a great change is at once perceptible; and, again, the educated touch will hold the point against the gold so as to ensure perfect packing, and no force wasted. In fact, through a wide variation of power, it is under perfect control.

A few words in closing, on the finishing. This is a matter of detail, and often of sad neglect. Too high a polish cannot be given to the perfected work. Do the best we can, and we will fall short, far short, of Nature's model. Time and labor cannot be thrown away, if intelligently employed in the finish.

I mentioned in speaking of packing gold, that solidity and homogeneity were essential considerations. I grant that a filling that is hard enough to resist pressure, and is perfectly adapted to the walls of the cavity, will prove effective; but perfect adaptation and the requisite hardness, as a rule, also mean homogeneity, not always though; yet I feel certain of my position, when I say that it is not only far easier to finish a uniformly dense filling, but that the work can be done in a shorter time, and always in a more satisfactory manner. I know of no more discouraging labor than that employed in attempting to put a finished surface on an imperfectly packed filling.

Where a tooth has been mutilated by disease, or the file and disc, a question often arises, as before mentioned, as to whether the gold shall be allowed to overlap the edges of the cavity, or simply be rounded out from them. It is doubtful whether gold can be made to lay against tooth substance in such a manner as to prevent the ingress of fluids. The thinner and deeper, or thinner and wider the overlapping gold, the greater the doubt and uncertainty. If the diameter of the gold is one-third or one-half greater than that of the cavity, we may be almost certain of trouble in the near future.

The difficulty in making a perfect edge is also greatly increased in these cases, and so it is a safe rule to observe to finish the gold to fit the cavity, and to take the place of an overlapping lid as little as possible.

In shaping, the articulation should be left always in such a condition that the filling should, in mastication, be pressed back into the tooth, not out from the cavity.

As a means of education, I know of nothing superior to making fillings out of the mouth. Anyone who has not tried it will be surprised at the amount of instruction that can be acquired in this way, and in no other. Any earnest worker who makes the experiment will be astonished to find not only that the operation is not easy, under these simple conditions, but as he aims for perfection, how difficult it is to attain. His edges will remain imperfect, and his powders will scratch, and he will wonder how he ever succeeds in the mouth.

To sum up, in preparing your cavity be careful to avoid deep undercuts or pits, and throw as little strain on the enamel as possible, and make clean, polished edges. In packing the gold, bear in mind that your filling must be homogeneous throughout, perfectly fill the cavity and build up in a series of plains, and in finishing imitate Nature in the high polish you put upon your work, for at your best will fall far short of her beautiful handiwork. To do perfect contour work requires care and skill and a conscientious regard for all details. With practice and experience one will be surprised to find how often the impossible becomes possible, and the difficult easy of attainment.

The Teeth of Invertebrate Animals.

BY ALTON H. THOMPSON, D.D.S., OF TOPEKA, KAN.

Read before the Dental Section of the American Medical Association.

The resources of Nature are infinite. The expedients to which she resorts are marvelous and endless in their variety. When new conditions are to be met, her invention is never at a loss, and her capacity for change is boundless. Environments change and corresponding alterations in organs arise to meet the new conditions presented. The life of a species depends upon this power to change, to conform to new environments. The law is adaptation or extinction.

In no set of organs—in animal life at least—is this infinite variety of resources, or the capacity for change, or the power of invention, so fully illustrated, as in the teeth. Food selection has created a wonderful variety of forms of teeth which have arisen in response to changes in the food environment. Those species which could conform to gradual change, survived and transmitted the acquired modifications in the dental apparatus. Those which could not change, perished; or escaped to a more favorable food environment. From such causes many variations in the teeth of animals arose in the course of the geological ages, and, taking the living and the extinct species altogether, the number and extent of these variations is beyond estimation. The variety presented in the different forms of teeth and masticating

apparatus throughout the animal kingdom, illustrates and exemplifies the fact that these organs are susceptible of great variation, and that the possibilities of change and the invention of Nature, are especially marked in these organs.

If vertebrate animals present great variations, and many extraordinary forms and interesting extremes in the structure of the dental armature, so also do the invertebrate animals, although these are not so well known. To the naturalist and the philosopher the latter are equally interesting, however, and serve to enlarge our views of the wonders and beauties of nature. To the dental student the teeth of invertebrates are interesting from the comparative standpoint, and serve to illustrate the remarkable possibilities of dental variation, and help to better understanding of the principles of the mechanical evolution of the teeth of animals. In such studies, any knowledge is valuable which may contribute, even remotely, to a better understanding of the important organs which we are called upon to preserve, and thus better prepare us for our chosen work. The study of comparative anatomy is of great value for the side lights it throws upon the teeth of man—their origin, evolution, mechanical design, etc.,—and therefore we claim that the study of a branch, even as far removed from man as the invertebrates, is of sufficient value to warrant us in presenting a brief epitome of our knowledge of this branch; by way of stirring up an interest in it as an incentive to further study and investigation.

Professor Huxley says, "Anatomy of Vertebrates:" "When invertebrated animals are provided with teeth or masticating organs, the latter are either hard productions of the alimentary mucous membrane, are modified limbs, as opposed to vertebrated animals, which also usually possess hard productions of the alimentary mucous membrane in the form of teeth; but their jaws are ordinarily parts of the walls of the parieties of the head, and have nothing to do with the limbs." The vertebrate jaw is part of the endo-skeleton—the invertebrate jaw belongs to the exoskeleton, as do the teeth of all classes of animals, as illustrated by their embryology.

Mr. W. H. Dall says, "American System of Dentistry:"

“Almost every large group of organisms below the vertebrates, until we reach the Moluscoidæ and lower radiated animals, exhibits in some of its members, one form or another of prehensile or masticatory apparatus connected with the alimentary canal. None of these exhibit true homologies with vertebrate teeth, though some of them present remarkable similarity to the latter in external relation. . . . They are divided into manibular and dental appendages in the sense in which the latter may be said to exist in the invertebrates. . . . Throughout the invertebrates the tooth are dermal structures, however much modified, and may consist of calcified connective tissue, of horny matter, or of chitin or an allied substance. . . . The teeth and jaws of mollusks, the nippers, mandibles and settac of worms, are composed to a greater or less extent of chitinoid material.”

Prof. A. S. Packard says, “Standard Natural History:” “Hard bodies serving as teeth occur for the first time, in the animals series, in the sea-urchins, where a definite series of calcareous dental processes or teeth, with solid supports and a complicated muscular apparatus, serves for the comminution of food. . . . Among the worms the organs of mastication for the first time appear in the Botatoria, where the food, such as infusoria, etc., is crushed, and it is partly comminuted by the well marked horny and chitinous pieces attached to the mastax. In most other low worms the mouth is unarmed. In the leech there are three, usually in the annelids, two denticulated or serrate, chitinous flattened bodies situated in the extensible pharynx of these worms, and suited for seizing and cutting or crushing their prey.

“In the higher mollusks, such as the snails and others, besides one or more broad pharyngeal jaws, comparable with those in the worms—is the lingual ribbon, admirably adapted for sawing or slicing sea-weeds, or cutting or boring into hard shells, acting somewhat like a lapidary’s wheel; this organ, however, is limited in its action, and in the cuttles, the jaws, which are like a parrot’s beak, do the work of tearing and biting the animals serving for food.

“In the crustaceans and insects we have an approach to true jaws, but here they work laterally, not vertically, as in the verte-

brates; the mandible of the articulate and modified feet, and the teeth on their edges are simply irregularities or sharp processes, adapting the mandibles for tearing and comminuting food. The numerous teeth lining the crop of crustaceans and insects, serve to further comminute the food, keeping the larger particles back till finely crushed."

Professor Bradley says, "Manual of Compar-Anot:" "The lowest forms possess no teeth, except some ciliate infusoria, which have an internal cylinder of parallel rods for the mastication of food. . . . In the Rotifera the denticles are in the shape of denticulated plates. The Echinodermata have five large teeth placed in the formidable apparatus called "Aristotle's Lantern." In the Annulosa the leech is the only member that possesses teeth, the semi-lunar plates imbedded in the muscular walls of the mouth; but the remaining classes have only mandibles and maxillæ which are very hard and chitinous. Among the Molluska, the Gasteropods possess a strap-like organ, the odontophore, which is studded with teeth. Cephalopods possess horny jaws which move vertically. Some other classes have denticles besides."

"In the Annelids (Dall op. cit.) so-called teeth occur in many group, but partake rather of the nature of jaws than teeth. This group comprises most of the worms, as well as the leeches. Their bodies are divided into more or less well defined, regular segments, and in general the jaws are on the second or buccal segment, or on a proboscis which is itself on the outer edge of this segment, and may be protruded from the mouth to a considerable distance. They are chitinous, most commonly paired, lateral and opposite, of almost infinite variety of forms, resembling in a general way the maxillæ of insects, and mimicing in miniature, hooks, combs, saws, rasps, claws, etc.

"In the leeches the mouth is provided with three lenticular jaws, with the projecting edges finely serrated, having a partly rotary motion about a point central to the three. The medicinal leech has two rows of serrations on each jaw.

"Among the crustaceans—lobsters, shrimps, crabs, etc.,—the maxillary organs are but modifications of entire limbs trans-

lated from the locomotive series and set apart as special mouth organs. . . . In the higher crustaceans the anterior part of the stomach is provided with certain masticatory appendages or stomacholiths, often termed teeth, though more analogous to a sort of a calcareous gizzard. These consist of several calcareous pieces, moved by appropriate muscles inserted in the membranous wall of the stomach, armed with a smooth median plate and lateral molar-like organs, whose mimetic resemblance to the molar teeth of some forms of mammalia affords a beautiful illustration of the way, through the selective influence of similar functions, analogous structures may be built up in organs which have no homology whatever. Two smaller points, bicuspid in the lobster, tricuspid in the crab, complete the calcareous apparatus.

“Among the schinoderms, the sea-urchin has a remarkable apparatus called “Aristotle’s Lantern,” which contains what may be fairly regarded as true teeth. . . . It is very complicated in its arrangement, but in essentials consists of five hard, calcareous wedge-shaped sockets or alveoli, each containing one porcelainous chisel-shaped tooth. The teeth are, like those of rodents, usually worn more on the inner than on the outer side, and therefore in wearing always preserve a sharp edge. The combination of the teeth and alveoli produces a pentagonal cone, the apex being formed by the coming together of the points of the teeth. In life this cone is concealed within the tissues, only the points of the teeth projecting.”

Not many of the Mollusca are provided with teeth; the entire group of Acephala (the headless mollusks, such as clams, oysters, muscles, etc.) are entirely without head or dental apparatus. And not every one of the Cephalopoda (whelks, snails, periwinkles, etc.) are provided with teeth, but most of them have such organs. When they are found they are arranged on the “odontophore,” a chitinous band upon which the teeth are set, pointing upward and backward like the papilla on a cat’s tongue, and it grows out of the radular sac in the floor of the gullet. The floor of the sac is carried forward, with the radula upon it over an arched, cartilaginous mass called the buccal cartilage,

and down to the front edge, immediately behind the mouth. This serves as an elastic pad which may press the denticulated surface of the radula against any object to be torn or cut. This is controlled by muscles which draw it backward and forward, or even protrude it, as can be seen in the common wood snail, in which the pink buccal mass is pushed forward to seize and cut food. In the snail the number of these teeth is remarkable, 12,000 to 40,000 have been counted on the saw-like lingual ribbon. It can cut grass or leaves sharply off. As the teeth are worn off the ribbon, it is uncoiled, and new teeth are thus brought into use. The upper part of the mouth is lined with a horny substance, against which the sharp-toothed tongue works with a rasp-like motion. The tough leaves of the lily may often be found cut by the snail's lingual ribbon.

“The teeth on the strap-like odontophore are varied and remarkable in shape and size, and are difficult to examine, as some of them are very minute and hard to dissect out and study. They are usually composed of a base, a shank or stem, and a cutting edge, the latter simple or variously denticulated. The form of the cutting edge is varied, the carnivorous forms usually having simpler and more claw-shaped teeth. When arranged in rows, as they are in many forms,—the middle row is called the median or *rachidiæen* teeth, and the lateral rows, the lateral or *pleural* teeth. The latter are usually right and left.

Sometimes there are teeth outside of the lateral rows which are called the *Uncini*, and are flat, plate-like, or slender, spiny teeth. They may be very numerous, as in the vegetable feeding snails, or wholly absent in other forms.”

There is much to be observed about the teeth of the snails and their allies, and the field offers a profitable opening for investigation. They are already divided into classes by an elaborate system of arrangement, but much remains to be done in describing varieties. The adult perfect teeth vary from nearly transparent to an amber yellow or reddish brown, and sometimes the cutting points are black. In any large whelk they are easily seen, and in a large cuttle fish the radula may be an inch wide. On the other hand, in some small land snails, where the whole

shell is not larger than a pin head, high powers are necessary to observe them. . . . The highest type in the system of classification is called the *Toxoglossal*, or arrow-toothed, from their narrow, round form, often barbed, and sometimes hollow to inject poison—as in *Belaor Conus*.

Next come *Rachiglossa*, having only rachidian teeth, as in the common whelk. The teeth are usually slight and varied, and prettily denticulated on the cutting edge. The next is the *Tenioglossa*, bent-toothed, including the greater part of the fresh water snails. The *Ptenoglossa*, feather-toothed, are a small group, of which the sealaria is a member. The *Rhiphidoglossa*, needle-toothed, comprise a large number of sea-snails, and a few operculated land snails. The last is *Docoglossa*, chevron-toothed, and includes the limpets. Some snails present a pavement-like form and arrangement of teeth, which are often of a very pretty pattern, or again a mere hardened mass.

We have thus given briefly the outlines of a study of the teeth of invertebrates, merely to indicate the extent of the subject, and to suggest the interest and attractiveness there is in its pursuit to the naturalist; and in addition to this, to suggest that the study of invertebrate odontology has a positive value to the comparative dental anatomist, from a philosophical standpoint. As a leaf from the great book of Nature, it unfolds to us many of her beauties and wonders, and it is also pregnant with suggestions to the dental student who follows his subject out into all of its branches. So we find in this branch, varieties of form and adaptation to purposes which are not paralleled in the vertebrates. The study of their forms and fitness to perform particular duties, is full of interest and surprises, in the fertility of design which Nature exhibits. Then the analogies presented are very interesting, as in the case of the cuspidate teeth of the stomacholiths of the crustacea, which resemble vertebrate grinding teeth, and show that similarity of function often develops similarity of form, even in dissimilar parts. Of homologies with vertebrate teeth, there are few, as the jaws of the articulates work horizontally and those of vertebrates vertically. In the few instances of invertebrates which have vertical jaws, those parts are armed

with beaks and the teeth are situated further back on the odontophore. The teeth of the sea-urchin have true sockets and alveoli, but their arrangement, support, and motion are very different from those of the vertebrates. So that taken altogether, the class presents few homologies with vertebrates, or even resemblances to them, and thus affords a variety of illustration that the latter does not supply.

Mouth Breathing not the Cause of Contracted Jaws and High Vault.

BY EUGENE S. TALBOT, M.D., D.D.S., OF CHICAGO.

Read before the Section of Laryngology and Otology at the forty-second annual meeting of the American Medical Association at Washington, D. C., May, 1891.

Mouth breathing was not known among the early races, the present pure races or modern uncivilized races, neither are deformities of the jaws and teeth. You will all admit that mouth breathing is becoming a very common occurrence among our own people, and so are also irregularities of the jaws and teeth. It stands to reason then, that the causes which will produce the one must necessarily, in many cases, produce the other.

In an otherwise able article upon the subject of "The Influence of Adenoid Hypertrophy at the Vault of the Pharynx upon the Development of the Hard Palate," read before the New York Odontological Society, November 19, 1890, by Dr. D. Bryson Delavan, the author speaks of mouth breathing as a cause. He says: "The mouth breathing habit compels the constant dropping of the lower jaw, which hanging by the cheek from the superior maxilla, causes constant pressure upon the upper jaw. This produces flattening of the lateral alveolar arches and shortening of them, in consequence of which there is not sufficient space for the eruption of the canines when they are due, and they therefore grow forward."

Other authors mention that sleeping with the mouth open produces tension of the buccinator muscle, this causing the jaws to contract, and they suggest different theories by which this

pressure brings about the peculiar form of deformity. There are also very able gentlemen (specialists) teachers in our medical colleges, who are constantly bringing this theory before the students as a cause. This teaching has a tendency to defeat scientific investigation in the direction of ascertaining the real causes of the true condition found in obstruction of the nasal passages by assuming to place the real fact, namely, mouth breathing, as the cause. The students take it for granted that this is the cause and the only cause for this condition.

* Let us look at a few facts as they have been presented to me in the constant study of the deformities of the jaws and teeth for the past fourteen years ; and you, gentlemen, shall be the judges whether mouth breathing has any thing to do with contracted arches or not. In the first place let us glance at the parts involved. The superior maxillary bones are united at the median line. The outer surfaces have upon their border an alveolar process. Gray speaks of these two structures as one bone, the superior maxillary bone ; but from the function, structure and position of the alveolar process in its relation to the maxillary bone proper, they should be described as separate and distinct bones. The maxillary bones proper are made up of dense, compact tissue, and are so arranged as to resist force. The outer surface of the bone is fortified and supported by the malar process, which is situated midway between the maxillary process and the canine eminence at the first permanent molar. At the canine eminence we have the strong, thick plate of bone extending from the bridge of the nose to the alæ, the mesial portion forming the outer surface of the nasal cavity. We also observe that the nasal septum is situated at the centre of the nares and is attached to the maxillary bone at and along the place of union of the two halves of the maxillary bone. If a saw was passed through from one canine fossa to the other we should see that it involved the strong pillar of bone which goes to make up the outer surface of the nasal cavity. This strong pillar of bone is situated just at the point of the permanent location of the cuspids ; this, together with the nasal septum, form a strong support to the hard palate. The maxillary bones are for the attachment

of muscles and the resistance of force in masticating food. The hard palate does not assume the normal shape until the twelfth year, or after the teeth are all in position. The vault may be high or low, ranging from one inch above the margin of the alveolar process, between the second bicuspid and first permanent molar (which is the highest vault I have seen) down to one-quarter of an inch from the same point, which is the lowest vault I have observed. In either case they are normal, each variety depending upon the shape of the bones of the head for its peculiar form. The alveolar process, on the other hand, is made up of soft, cancellated structure, and is solely for the purpose of protecting the germs of the teeth before they have erupted, and it also supports the teeth after they are in place in the jaw. From the time the teeth make their first appearance until they are lost, the alveolar process has developed and been absorbed three distinct times. The alveolar process then, being solely for the protection and support of the teeth, it stands to reason that the position and shape of the alveolar process depend upon the location of the teeth. The bone proper, therefore, as we shall see later, is not influenced to any great extent by the movement of the teeth. The buccinator muscle is composed of striated muscular fibres and is, therefore, under the control of the will. It is penniform in shape. It has its origin and insertion along the body of the jaws, above the alveolar process on the upper jaw, and below the alveolar process on the lower. It extends from the first bicuspid tooth anteriorly to the wisdom tooth posteriorly. The centre of the muscle would, therefore, be in one direction on a line with the grinding surface of the teeth, and in the other direction at the first permanent molar. Its function is for the purpose of compressing air in the act of blowing, whence its name is derived, and also for the purpose of carrying and holding the food under the teeth during mastication. There are many cases of contracted arches where mouth breathing does not exist. There are also many cases of normal arches where it does exist. As all are aware, mouth breathing frequently commences very early in life; contracted jaws, on the other hand, never commence to form until the seventh or eighth, and in

most cases the tenth year, except in cases of monstrosities, or from traumatic causes. When these conditions exist they are wholly unlike the usual contracted arches and can be diagnosed at once, and therefore should not enter into this discussion. Contracted arches are of two kinds—V (Fig. 1) and saddle (Fig. 2)—all the other varieties being modifications and blendings of these two. It is apparent to every one that the

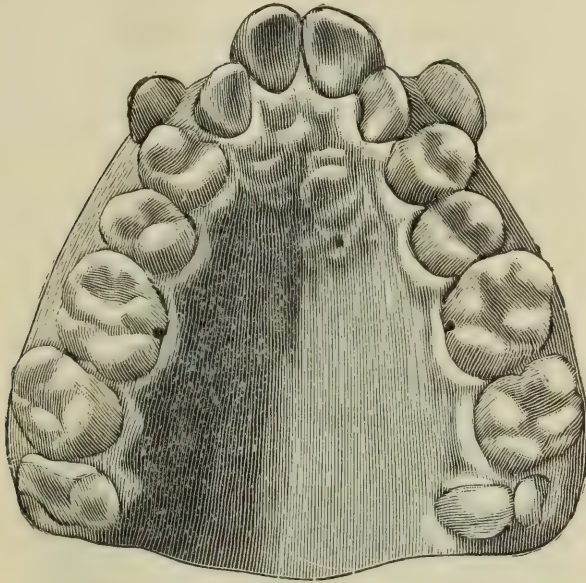


FIGURE 1.

cause which produces the one does not produce the other. My observation has been that there are two-thirds more V and saddle-shaped arches among the low vaults than among the high vaults, taking $\frac{18.77}{32}$ of an inch as an average, but where one of these deformities exists with a high vault it is always more marked, for the reason that in the high vault the alveolar process is high and thin, and the teeth are more easily carried in one direction or the other, with very little resistance. In the V-shaped arch commencing at the first permanent molar, there is a gradual narrowing of the teeth and alveolar process toward the median line, where the incisors may reach a point or may stand in their normal position to each other. Invariably there is a protrusion of the teeth and alveolar process, and not the

jaw. On the other hand, in the saddle-shaped arch the bicuspid are carried inward and the deformity is invariably situated between the first permanent molar and the cuspid. Unlike the V-shaped variety the anterior teeth and alveolar process never protrude in this class of deformities. The contracted hard palate is always associated with the V-shaped variety, and in most cases extends backward to the second bicuspid. It is never seen with the saddle-shaped variety. The high vault is never seen in the first set of teeth, nor does it develop until the second set are all in place, which is at the twelfth year. The vault commences to slope slightly from the neck of the incisor until it reaches a line

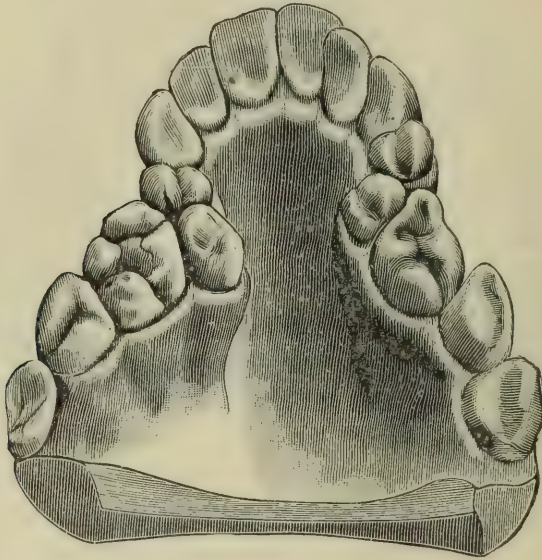


FIGURE 2.

drawn across the roof of the mouth from the first right bicuspid to the first left bicuspid, and then it gradually or abruptly slopes upward until a line is reached which is drawn across the jaw from the anterior surface of the opposite permanent molar. From this point posteriorly to the soft palate the dome is usually on a level; occasionally we see a slight depression and occasionally a slight elevation, but these are so slight as to escape notice unless one were looking for the peculiarity. In mouth breathing the lower jaw usually drops only sufficient for the passage of

the same volume of air as would pass through the nasal cavities, which is only about one-half inch. Old people often sleep with the mouth open and frequently to the fullest extent, but these deformities of the jaws and teeth never occur after the eruption of the teeth, say at the twelfth or fifteenth year. When one opens his mouth he is conscious of a tension of the orbicularis oris, but not of a pressure of the buccinator, no matter how wide it may be opened. This muscle being under the control of the will is always passive except in the act of blowing or eating, therefore contraction during sleep is wholly out of the question. As the buccinator muscle extends anteriorly to the first bicuspid only, it can produce no effect upon the V-shaped variety of deformity, in which is also found the contracted vault. Therefore, the only deformity that is likely to be produced is the



FIGURE 3.

saddle-shaped variety, which is out of the question for reasons which I shall explain later. The orbicularis oris muscle can not produce the contraction because when the mouth is open the pressure exerted on the six anterior teeth is backward. Thus the teeth are carried in the opposite direction from that which must be taken to produce this deformity. Again, the pressure is just as great upon the incisors as upon the cuspids, thus holding them in place. More force is exerted by the orbicularis oris

upon the six anterior teeth when the mouth is open than can be exerted (if it were possible) by the buccinator muscle, which would tend to hold the anterior teeth in place. For years it has been demonstrated by dentists in regulating teeth that it is very rare for the apices of the roots of teeth to move when pressure is brought to bear upon the crowns of teeth for the purpose of regulating them. This being the case, teeth having long roots like the cuspids are less liable to move than teeth with short roots like the lateral incisors and bicuspid. Since in the moving of a tooth the greatest change which takes place is at the neck, it stands to reason that the greatest absorption and deposition of bone takes place at that point. The roots of the cuspid teeth are larger and longer than any other teeth in the jaw: unlike other teeth the germs are situated considerably higher and farther

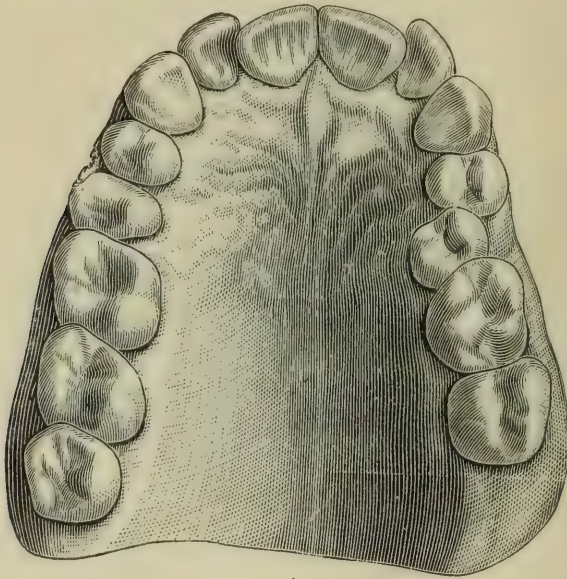


FIGURE 4.

toward the outside of the alveolar process, so that when they come close into position they diverge from the apices to the crowns, while all the other teeth stand nearly, or quite, perpendicular, thus showing that the roots of these teeth do not influence the hard palate. I have shown that the first permanent molar and the teeth posterior to them are never involved. I have also

shown that the centre of the muscle in both directions is located at this tooth. How is it possible, since all the teeth are covered by the muscle upon one side, that half are carried inward and the other half remain normal? Again, if mouth breathing is the cause of the contraction, both sides must contract alike, and the deformity must be uniform upon both sides, which is never the case. Muscles do not contract to a degree sufficient to produce the pressure necessary to produce a deformity. It is inconsistent with our knowledge of the influence exerted by muscular structure in other parts of the body. Some of the muscles of the chest exert much more pressure in respiration than it is possible for the buccinator to do during sleep, yet no one would expect to find the ribs modified by this process. The pressure of the tissue upon the crown of the teeth is not sufficient to affect the alveolar process through the roots of the teeth, but even if it could modify those spongy structures its force would stop there, and would not extend to the osseous vault, bending it out of shape. In most of these cases the superior maxilla and the diameter of the alveolar process and teeth is very much smaller than the inferior maxilla, alveolar process and teeth; in such cases the muscles and cheek could not reach the teeth and alveolar process upon the upper jaw. This is always the case in the worst forms of irregularities. The changes which take place in bone are not a bending in at one place and forcing out at a weaker point to compensate for the space lost, but are an absorption and deposition of bone at the point of pressure. And even if such were the case, the strong pillar of bone situated at the very point of contraction of the alveolar process, together with the nasal septum, both form a strong bulwark for the resistance to the pressure which is situated quite a distance from the top of the vault. Again, it would be as impossible to produce pressure sufficient to break the dental arch as it would be for the weight of a building to break the arch of a door or window. The tongue exerts a much greater force in the act of swallowing and would prevent the inward movement of the teeth if so slight a pressure as the muscles of the cheeks were the cause of the deformity. For the sake of argument let us suppose it were possible

for the buccinator muscle to produce this contraction ; we should then expect to find the modification of the osseous structures uniform. This would shut out semi-V (Fig. 3) and semi-saddle-shape arches (Fig. 4) entirely, and a majority of other irregularities of the teeth in which there is bilateral asymmetry, for however much one would incline to the prevalent theory, no one would dare to assert that the muscle will act on one side of the mouth, while that on the opposite side remains passive. Partial V- (Fig. 5) and partial saddle-shaped arches (Fig. 6) make it still less plausible. In these we meet with sudden bends inward where only one or two teeth may be involved, which could only be produced by a centralization of force on one given point or fibre of muscle, a peculiarity of function that has never

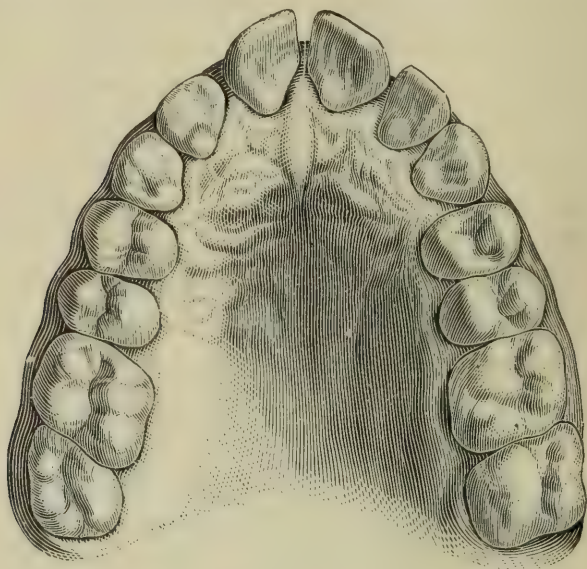


FIGURE 5.

yet been ascribed to muscles. The muscle being penniform in shape it would be impossible for one or two fibres of the muscle to exert its influence upon a bicuspid. It would naturally lap over two or more teeth. Lastly, if the buccinator acts as all muscles uniformly throughout its extent of contraction, below its median line it is just as efficient in producing a narrow contracted arch as in its upper portion, and we should expect to

find the lower maxilla contracted whenever the upper one is, which is contrary to facts. A V-shaped arch can never occur upon the lower jaw if the teeth articulate normally because these teeth strike inside of the upper and are usually prevented from moving forward. A saddle, partial saddle and semi-saddle arch may occur on the lower jaw but these deformities are not often seen. When they do occur they are the result of improper occlusion with the teeth of the upper jaw. We always observe in semi-V and partial V-shaped arches that the alveolar process is contracted upon the side of the deformity. If one side is contracted more than the other we shall observe that the alveolar process is contracted in proportion to the amount of the defor-

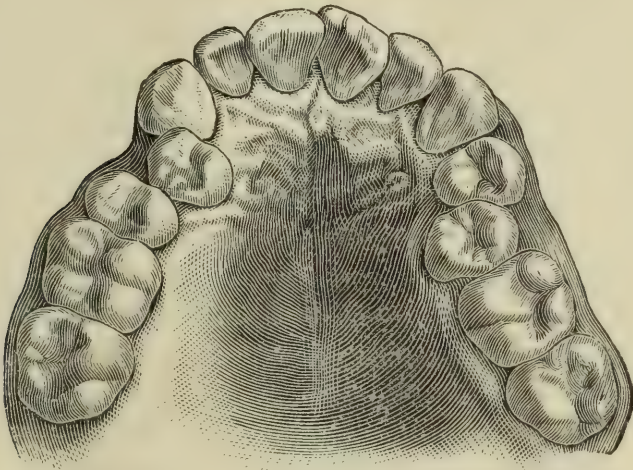


FIGURE 6.

mity; the vault on that side is not carried up beyond the other side, which is normal. In the saddle, semi-saddle and partial saddle-shaped arches we find the alveolar process built up about the teeth in the precise uniformity to the nature of the shape of the arch. If we take 3,000 models of the upper jaw and arrange them in groups according to the forms here represented and then examine very closely the arrangement of the teeth in each group, we will be unable to find any two alike in either group; thus showing that an external force acting upon the jaws from the outside could not possibly be the cause. If it were possible all

the models of one variety would resemble some exact form. Dr. Delavan says that "The prominence of the anterior region of the alveolar arch is still further increased by the projection forward of the superior maxilla at this point, and of the upper teeth." The doctor is quite mistaken as regards the "projection forward of the superior maxilla." The maxillary bone never protrudes in front in this class of cases, it is only the alveolar process which is carried forward by the projecting teeth. The only issues involved in these deformities are the teeth on the one hand, and the alveolar process on the other.

In most cases the cause of these deformities is arrest of development of the maxillary bone. This condition is due not only to hereditary influence, but also to direct causes such as the eruptive fevers and all lesions which are constitutional and which produce long sickness. When arrest of development of the superior maxilla takes place we always notice a depression at the alæ nasi, and a sunken condition of the bones of the face on the line drawn from ear to ear, and occasionally extends up to the floor of the orbits. If we will examine closely the faces of an audience in Chicago we will observe that from forty to fifty per cent. of all these people have this arrest of development of the superior maxilla. Such being the case, arrest of development must necessarily extend to the bones of the nose, thus producing mouth breathing. Ziem has frequently shown that if one nostril of a rabbit be permanently closed and the animal killed after it has attained its full growth, the nasal cavity of the affected side will be found to be undeveloped and asymmetry of the face will take place. Arrest of development of the bones of the nose and hypertrophy of the bones and mucous membrane will ensue as a result. A good illustration of hypertrophy of mucous membrane from want of use is observed by dentists when the gums puff up, thicken and extend one-half to three-fourths of the length of the teeth from want of brushing. It would be useless for any one to say that mouth breathing is the cause of one case of V-shaped arch in every twenty and that some other cause produced the rest of the deformities. We must have a law which will work in all varieties of contracted arches as well as the V-

shaped, which variety constitutes a very small percentage of the whole. I have watched the development of these different varieties for the past fourteen years, have taken impressions of the mouths of some of the most marked cases every three months and compared them. I have also produced most of these forms in the movement of the teeth for the purpose of correcting deformities.

I regret that it will be impossible at this time to show how these different forms of irregularities of the teeth are produced, but they are nicely described and illustrated in my work upon "Irregularities of the Jaws and Teeth, and Their Treatment." I will, however, say that they are caused by the long diameter of the dental arch being too great for the long diameter of the superior maxilla. Having then discovered the cause (that of arrest of development of the maxillary bones) of contracted jaws and irregularities of the teeth, have we not a good foundation to work upon to discover the cause of deflected septum and mouth breathing?

Stomatitis—Especially with Reference to Dentition and Dental Surgery.

BY V. A. LATHAM.

Read before the Students Dental Society (U. of M.)

Under this heading we will notice some points of interest connected directly with children at the period of Dentition, selecting Stomatitis as the most common, and though it usually comes more directly under the care of the general practitioner, it is important that dentists should be well acquainted with it. Unhappily medical men know too little of dentistry and the dentist too little of general medicine to be able to thoroughly examine these cases and to treat them as is necessary, seeing they depend for cure on the attention given by both professions. We of all people should know thoroughly the normal healthy appearance of the oral cavity and all it contains, and should therefore also

be immediately able to detect any abnormal or pathological condition that may be presented. In the examination of a mouth for disease, we should cultivate as early as possible a habit of thoroughness; we should not be content with looking at the teeth, but inspect the gums which so often disclose much about the condition of the roots of the teeth by the appearance of the surrounding parts. If any abnormality be present, examine for the cause with every care and then decide on the treatment and remedy, noting at the same time the idiosyncrasy of the patient. Every dental surgeon should be able to form a correct diagnosis of any case he may meet with, though to do this often requires considerable book knowledge and practical experience in hospitals and dental infirmaries. Many of these affections we as dentists are called upon to treat, and others after they are diagnosed we may hand over to the care of the physician. These cases, no matter whether simple or serious, we should be well acquainted with as we are more likely to see them in their earlier stages, and by immediate interference we may warn our patient and thus induce him to obtain medical or surgical attention and thereby save him from a long and serious, yes, and often a fatal illness. I would here mention the difficulty of the diagnosis of oral tumors and the great caution which should be exercised in examination, also the necessity for a prompt decision. For example, in epithelioma it is better to make a great many mistakes and use surgical interference than let one case of epithelioma go too long. Epithelioma travels by the lymphatics and when it begins in this way, the patient is beyond help. In hardly any case of death from cancer of the stomach has the liver been free from secondary cancer cells, for the reason given above; hence, make an early diagnosis, examine every small sore, ulcer and spot in the mouth, using every precaution in antisepsis for the benefit of the patient and yourself. Before discussing Stomatitis, it is well to understand something of dentition as this disease occurs the oftenest during this period. In older children it often appears as the result of some acute infectious disease, especially measles and scarlet fever; but in these cases it frequently passes on to a more severe form with a fibrinous exudation. We all

know the readiness with which most disorders of children are attributed by every class of persons to "the teeth." Every convulsion or intestinal trouble which a child may have is so placed, and accordingly either neglected or even regarded as salutary. The physician's aid is called only when too late. This old standing tradition, still in full force among the laity in spite of the improvement of education, is now most positively contradicted by a large number of medical men of to-day. Teething, they hold is a physiological process, which cannot be the occasion of any morbid symptoms, and everything formerly regarded as such is a delusion, caused by illnesses happening to occur along with them without having anything at all to do with it. It seems questionable whether such a positive denial is altogether warranted, and while granted it has rendered much service in limiting the "diseases of teething," it seems to me that there is a want of moderation in this view. We all know dentition occurs by the growing root of the tooth gradually pushing on the already complete crown and forcing it out of the alveolus after it has come through the overlying gum which has gradually been thinned by increasing pressure. Is it, then, so very unreasonable that this gradually advancing process should exert an irritating action on the dental branches of the fifth nerve and occasion those reflex symptoms, extending not only to the province of the motor, but also that of the vaso-motor nerves. To us, it seems possible, and I for one consider it going too far to deny utterly the possibility of convulsions being caused by the irritation of teething, as is so much done by some lecturers on "diseases of children." Instances have been known where partial contractions of the muscles of the throat and neck were undoubtedly connected with the eruption of a group of teeth, not only in children but adults. It is an indisputable fact that obstinate vomiting intestinal troubles, (diarrhœa) a spasmodic cough may occur. Again, when the incisors are being cut infants seem very prone to catarrh of the bronchial tubes and sometimes catarrhal pneumonia. Enlarged glands in children who are predisposed to glandular enlargements, are well known to be caused by the irritation of aphthous patches, either of the submaxillary

when the lower jaw is affected, or the parotid lymphatic glands which receive the lymph from the upper part of the face. These swellings may subside or end in either acute or chronic suppuration. In the latter case successive teeth being cut keep up the source of irritation. Eczema of the face and lichen are usually much worse while a tooth is erupting. The eczema very frequently gets well in the intervals, the face and body being free, until a tooth comes near the surface, and the eczema returns, the papules begin to ooze and crust and I can only explain this by the reflex action from the dental branches of the fifth upon the peristalsis, the vagus or the vaso-motor nerves. We must guard against neglecting the views and experiences of our predecessors, who have done so much in the past for the advancement of our science, with that presumption which has become unfortunately so common with some of the younger members of the profession. The irregularity of teething is so well known as to require no mention here, though the following case may serve to show the necessity of a good education in general medicine and to do away with the idea. Oh, well, I shall not have patients to attend to till they are a year or two old.

CASE A.—Aet 13 days. Illness dated from fourth day after birth without apparent cause. The margin of the lower alveolus swollen, red, covered with pus, which oozes out on the slightest pressure as from a sponge. During the last few days both lower central incisors have appeared and been extracted, leaving behind two suppurating cavities. The teeth consisting only of a crown coming to a point below without a root. Prof. Henoch cites a number of cases of extremely premature dentition and similar to the above. He considers it probable that periostitis of the alveolar margin, whether in upper or lower jaw, forces the crown of the tooth out by swelling and exudation inside the alveoli, and regards periostitis to be the primary cause and not any violent extraction of the teeth. It will be a study to discover how this disease of the bone, occurring at birth or so early afterwards, was occasioned in these cases. Prof. Samelsohn cites a case of periostitis of the orbit in a child of 14 days old, and thought the cause of disease (eyeball was enormously

protruded) was the first molar which was prematurely forced through, and on extracting the case ended favorably. The tooth showed a well developed crown and the beginning of a root. Prof. Henoeh differs as to the cause and believes it was the occurrence of periostitis of the upper jaw, due to unknown causes. Before discussing the affection proper, recall the anatomy and histology of the mouth which is known to you all and then we can understand the disease known as

STOMATITIS.—The inflammatory lesions which affect the mouth may be classified as follows: (1) Catarrhal; (2) follicular; (3) aphthous; (4) ulcerative; (5) gangrenous; (6) mercurial; (7) parasitic; (8) syphilitic stomatitis.

(1) Catarrhal stomatitis, synonyms. Simple stomatitis, erythematous; catarrh of the mouth.

DEFIN.—An acute catarrhal inflammation of the whole or a portion of the mucous membrane of the mouth and tongue, characterized by redness, swelling and disordered secretion—mostly found in infants and children.

CAUSES.—(a) Dentition—usually about the period of eruption of the milk teeth, between the ages of 6 months and 2 years may appear in conjunction secondary Dentition 6—13 years or even in adult life when erupting the wisdom teeth (*Dens Sapientiæ*) and through inoculation (Barrett, *Cosmos*, Oct. 1891.

(b) Local irritants, improper food, abuse of alcohol or tobacco, carious teeth, accumulation of tartar.

(c) Digestive disorders, primary or associated and with general disease.

PATHOLOGICAL ANATOMY.—Buccal mucous membrane and tongue, dark red appearance, much swollen, tongue seems too broad to lie between the teeth and its sides marked by them; secretions at first less, then increasing, cloudy mucus covers the cheeks, gums and tongue, causing a coated tongue.

SYMPTOMS.—The onset is marked by a temporary diminution of the secretions of the mouth, while the mucous membrane becomes dry, hot and tumid, and is beset with bright red patches which quickly spread and by coalescence form a diffused blush over the whole of the cavity. The saliva is scanty and tenacious,

the sense of taste vitiated or lost, mastication and deglutition are painful, the breath offensive owing to decomposition of the secretions and the patient may be annoyed by subjective gustatory sensations of a more or less disagreeable nature. In a few hours the secretions are restored and soon become excessive; the mucous membrane becomes redder and more swollen, and presents deep indentations at the points of contact with the teeth; the epithelium thickened and cloudy in places, and may here be detached, leaving superficial erosions; and finally in severe cases the borders of the gums may ulcerate and the teeth become loosened. As a general rule the disease is usually mild, the symptoms passing away within a few days; though occasionally it may defy treatment for several months. Stomatitis produced by eruption of third molar is particularly painful and continuous, and is characterized by sharp neuralgic pains all over the side of the face and forming ulceration of the tongue and jaws.

TREATMENT.—The first thing to do is to remove the exciting cause, attention to the secretion and diet, a dose of aperient medicine, emollient mouth washes; if an infant, a little lime-water in the milk. Chlorate of potash is about the best remedy in doses of from 2—6 grs 3 times a day, and when the mouth can bear it combined as follows:

R. Pot. chlor.....j drachm.
 Tinct. cinchona.....j drachm.
 Muriatic acid dil.....j drachm.
 Syrup Mulberries.....jss ounce.
 Water to.....vj ounces.

SIG. Half an ounce every 4 hrs for children 8 to 10 years. or some iron and mineral acid given instead. Ice to suck. Remember mouth washes cannot be used for infants unless by the nurse.

Borax, Condyl's fluid one-half teaspoonful to a pint, watching the action on the teeth, and if these are loose, do not extract them until you have given them a chance to refix themselves in their sockets, or until it is evident that their presence is prejudicial to the healing of the sores.

In obstinate cases which resist even the continued use of chlo-

rate of potash or even become worse under it, without your being able to find any reason for this peculiarity. Good results may be obtained from the use of Sulphate of zinc (grs. xxiv to 1 ounce or sulphate of copper (grs. xii to 1 ounce); with these paint the affected parts two or three times a day.

II. FOLLICULAR STOMATITIS. Syn. Aphthæ; vesicular stomatitis; croupous stomatitis. Is marked by an eruption of red papules surrounded by inflammatory areolæ, and developing apparently in connection with the mucous glands of the lips and cheek. The points generally soften and burst, leaving small excoriations which soon heal.

III. APHTHOUS STOMATITIS. This offers a certain resemblance to the parasitic stomatitis or "thrush," both in appearance and course, but is less superficial and does not present the same fungus on microscopical examination. It is characterized by the appearance of disseminated whitish or yellow patches of sub-epithelial exudation, which give place to superficial excoriations, and it may be associated with febrile disturbance and digestive disorders. This and the last variety usually appear under the same conditions as the catarrhal form.

The treatment is the same as for the above varieties.

IV. ULCERATIVE STOMATITIS. Syn. diphtheritic stomatitis; gingivitis ulcerosa. This is a more specific and troublesome affection than the catarrhal form, and is marked by a fairly definite localization of its principal lesions and an almost absolute limitation to two eras of life.

ETIOLOGY. Causes are constitutional debility mainly induced by impure air and improper or insufficient food; and the second cause is local irritation in association with the eruption of the permanent teeth. It is almost peculiar to children of the poor between the ages of six and twelve or persons from eighteen to twenty-five. In any case it may assume an epidemic form and perhaps is contagious.

SYMPTOMS. The first sign is fetor of the breath with a sense of heat and tenderness of the gums. The saliva small but gradually increases in quantity, becomes profuse, opaque and offensive. The whole of the buccal membrane becomes red, swol-

len and hyperæsthetic, the gums very tender, sensitive and bleed easily, the teeth loosen and perhaps fall out. The first part of the gums to be affected is usually near the incisors or cuspids of the lower jaw, the fore part of the gums suffering more than the back, and purulent matter flows from between the teeth on pressure, the cheeks and submaxillary connective tissue become œdematous, this swelling and the increasing pallor often disfigure the face of the child so as to cause anxiety and even lead one to fear it is a case of Noma or Cancrum Oris. Mastication is painful. The left side of the mouth is usually attacked, the gums dusky red or purple and swollen and ulcerated, especially where in contact with the molars, covered with a greyish deposit made up of epithelial debris, pus, blood, etc., and containing numerous bacilli. The tongue and mucous surfaces have white patches or superficial ulcers and these also occur on the palate, fauces and tonsils and are likely to be mistaken for mucous tubercles. It must be noted that the ulceration is not associated with an inflammatory induration of the contiguous tissues as in cancrum oris. In very severe cases this variety may end in mercurial stomatitis.

TREATMENT Is similar, using nourishing food, fresh air, tonics, caustics and mouth washes.

V. GANGRENOUS STOMATITIS.—Syn. cancrum oris, noma, occurs in squalid, half-starved children after eruptive diseases. This disease is often fatal and rapidly spreads over all parts of the face and is accompanied by fœtor, sloughing which often poisons the child and causes septic pneumonia, or death through exhaustion.

Sansom (4) describes an organism he found in the blood and diseased tissues, which on inoculation into guinea pigs and mice appeared in their blood. The *treatment* consists in actual cautery, caustics, lotions, nourishing food, tonics and surgical interference. Black lotion (calomel 3 grs. to 1 oz. lime water) is very beneficial in the early stage.

VI. MERCURIAL STOMATITIS.—This once common disease is now rarely seen in its more acute forms. It usually occurs during the administration of the drug or in connection with industries involving the use of the metal.

The symptoms are those of stomatitis and mercurial poisoning.

The treatment as above; the chlorate of potash often exerts a most magical influence over the local lesions. It may be used in the form of a lotion (20 or 30 grs. to the oz.) and given internally in combination with hydrochloric acid and bark. Sulphurous baths hasten the elimination of the poison from the system.

VII. PARASITIC STOMATITIS, commonly known as thrush, is caused by the growth of a fungus called the *oidium albicans* in the buccal epithelium. The fungus consists of fine-jointed and branching stems, some of the buds forming capsules, conidia, or spores, by which the growth is propagated. Its identity has been a matter of doubt, though by some thought to be the *oidium lactis*, or fermentation plant which turns milk sour; but Grawitz (5) has cultivated it in solutions of sugar and he considers it to be the *mycoderma vini*, or wine ferment. Rees, who has further investigated it, has named it *saccharomyces albicans*. Its chief seat is the mouth, but it has been found in the larynx, œsophagus and stomach. One must guard against the inexcusable mistake of confounding thrush with leucoplakia oris. Symptoms. It appears as little whitish spots upon a reddened base about the angles of the mouth; these enlarge and coalesce to form milk-white superficial patches of considerable extent, and in time may cover the whole of the buccal cavity. It is usually accompanied by febrile and gastric disturbance. The disease is not dangerous unless it occurs with or after exhausting diseases.

Treatment. Attention to hygiene and general health, relief of any gastric disturbance, and here nitric acid is valuable as a tonic. Mouth washes, and if the fungus has already colonized, it must be combated by applying alkalies, as it, in common with other bud fungi, does not flourish on alkaline media. (Repeated wiping out the mouth with a cloth dipped in a 5-10 per cent. solution of bicarbonate of soda). In more serious cases hourly painting with Ag No_3 (0.1: 20 to 50). Internally chlorate of potassium (1:100.0 a teaspoonful every two hours). and where the œsophagus threatens to become obstructed—emetics.

VIII. SYPHILITIC STOMATITIS.—This form must on no account be lightly passed over especially as it may lead to serious consequences both to the patient, family, physician and

dentist. The syphilitic lesions of the mouth are—(1) those of the early secondary period, a transient erythema, mucous tubercles and superficial sores resulting from the latter and (2) the gummatous infiltrations of the latter stages, which tend to break down into ulcers. The affections may assume special characters in the tongue and palate. An erythema of the mouth and throat is commonly associated with the earliest cutaneous eruptions, but usually of short duration and requires no special treatment. Mucous tubercles show themselves in the early months of the disease. They appear as flat or slightly prominent, opaque, greyish patches, which by detachment of the affected epithelium may become converted into irregular excoriations. The points attacked are the angles of the mouth, tongue, tonsils, pillars of the fauces, but the lesion may, and often does, involve any portion of the buccal membrane. This affection, so quickly amendable to treatment in most other situations, is often very obstinate in the mouth. Why? Possibly owing to the continued irritation kept up by the normal and abnormal secretions, by the passage of food, by constant movements of the affected parts in speech, mastication and deglutition. The best local measures of treatment are scrupulous cleanliness, careful selection of diet and occasional applications of Ag.No_3 in stick or solutions.

THE GUMMATA SYPHILOMA.—For convenience I divide them roughly into “superficial” and “deep.” The first, confined to the mucous membrane, the latter, extending into the subjacent tissues. In any case the lesion, as a rule, is primarily manifested by a tubercular prominence, but may sometimes assume a more diffused character, as in “sclerous glossitis,” of Fournier.

The gummata are always destructive in tendency and may lead to deep ulceration in the soft parts, or to necrosis where the bony walls of the mouth are attacked, and leave permanent and often unsightly scars.

The diagnosis of these syphilitic ulcers of the mouth is of more particular interest when the tongue is the seat of disease, but the distinction of the syphilitic ulcerations from epithelioma must be born in mind, in the investigation of all parts of the oral cavity. It is not easy to diagnose between malignant and gum-

matous ulcers. But, as a rule, the tertiary ulcer is marked by the absence of glandular enlargement, the comparatively slight induration of its base and borders, relative freedom from pain, its frequent localization in situations not exposed to direct irritation, by carious teeth, etc., and by the age and history of the patient. But age, history and locality in certain cases fail to afford any guiding indications. A syphilitic sore is occasionally painful and indurated, and there may be some irritative enlargement of the submaxillary glands, while on the other hand, an epithelioma in its early stages may cause no suffering, and may be long unassociated with any perceptible glandular implication. In cases of doubt the examination of a fragment taken from the surface of the ulcer and the tentative administration of rapidly increasing doses of iodide of potassium will often provide a solution to the problem; or the sore may be scraped with a curette, a plan that may enable the surgeon to arrive at a positive conclusion without prejudice to further treatment. It must, however, be remembered that a syphilitic lesion is not an infrequent nidus for the development of malignant disease, and that it is hence unadvisable to temporize too long with a suspicious ulcer that resists all the appropriate treatment for the milder affection. The constitutional treatment of the later syphilitic diseases of the mouth is that of syphilis in general. Locally there is little to be done beyond the exercise of the precautions mentioned in connection with mucous tubercle. In concluding, it must be remembered that to treat a disease does not necessarily require that we should know the cause, yet, if we do happen to be so fortunate we can the more scientifically treat the disease, and here we must remember the great part that dental or oral antiseptics has to play in attaining that end and yet in spite of your antiseptics, without a good constitution and general health the micro-organisms and diseases will still develop. Here then we see the necessity of a dental surgeon being able to recognize these conditions and to aid in their treatment as well as his brother professional, the physician, to whom he should be closely allied and equal to, if not entirely combined with for the good of mankind.

The following works have been consulted in writing the above article.

1. Ashby and Wright, Diseases of Children.
2. Henoeh, Lectures on Diseases of Children.
3. Samelsohn, Centralzeitung f. Kinderheilk (1) 1876. S. 190.
4. Sansone. Med. Chir. Trans. 1878.
5. Grawitz, Weber die Parasiten des Soors. etc. Virchow's Archiv. 1886. Bd. Ciii S. 393.
6. Miller, W. D. The Micro-Organisms of the Human Mouth.
7. Bristowe S.
8. Roberts, F.
9. Meigs and Pepper.
10. Tome's Dental Surgery.
11. Garretson " "
12. Harris " "
13. J. W. White, Dental Cosmos and article "Dentition."
14. Fraenkel. Transl. by Linsley. Bacteriology.
15. Crookshank. Bacteriology.
16. Fagge Principles and Practice of Medicine.
17. Payne. General Pathology.
18. Asburner J. On Dentition. 1834. (England.)
19. White, J. W. Dentition and Pathology of—Dental Cosmos—American System of Dentistry.
20. Pierre Dr. Marie Trans., by Del Valle 91. Stomatitis. June Dental Register. 91.
21. The Necessity for Constitutional Treatment in Dental Practice, Dr. Clifford, Dental Cosmos, 878. Oct. 1891.

An Ossified Man Broken.

As ossified man, who had been exhibited in many places around the country, was being carried up-stairs in his home in this city the other evening when the cot was tipped up a little and he rolled off down the steps. When picked up it was found that he had fractures of the right thigh, left leg and index finger of the right hand.

The Michigan Dental Law.

The law for the regulation of the practice of dentistry in the State of Michigan, as amended in 1891, now reads as follows :

The people of the State of Michigan enact as follows :

SECTION 1. It shall hereafter be unlawful for any person to practice dentistry in this State unless such person has received a diploma from the faculty of a reputable dental college, duly incorporated under the laws of this, or some other State of the United States, with a course of instruction and practice fully equal or equivalent to that of the College of Dental Surgery of the University of Michigan, or a certificate of qualification from the Board of Examiners provided for by this act ; *Provided*, That the provisions of this act shall in no way apply to or affect any person who is now located and lawfully in actual practice in this State.

SEC. 2. Said board of examiners shall be appointed by the Governor of this State, and shall consist of three practical dentists who shall be regular graduates of a reputable dental college, duly incorporated under the laws of this State or some other State of the United States, or otherwise possess the necessary qualifications contemplated by this act.

SEC. 3. Each member of this board of examiners shall serve for a term of three years, and until his successor is duly appointed and qualified ; except in the case of the first board, the members thereof shall serve respectively one, two and three years as specified in the appointment of the governor.

SEC. 4. The board of examiners shall be organized as follows : The member having but one year to serve shall be president of the board ; the one having two years, shall be treasurer, and the one having three years, shall be secretary. The treasurer shall make and file with the Secretary of State a good and sufficient bond to the people of the State of Michigan, in the penal sum of one thousand dollars, conditioned that he will well and truly pay over all monies received by him as such treasurer, in compliance with the provisions of this act and otherwise faithfully discharge the duties of his office.

SEC. 5. The board of examiners shall meet at least once in each year, for the purpose of examining applicants, after having given, personally or by mail, thirty days written or printed notice to each practicing dentist in the State who has filed his name and address with the secretary of said board. The said board is authorized to incur all necessary expenses in the prompt and efficient discharge of its duties, and pay the same with any monies in the hands of its treasurer.

SEC. 6. Each member of said board shall qualify by taking the oath of office prescribed by the Constitution of this State, and filing the same with the Secretary of State before entering upon the duties of his office. Should a vacancy occur in said board the Governor of this State shall fill the same by appointment.

SEC. 7. Any member of said board of examiners may, when the board is not in session, examine applicants, and in case any applicant is found competent, grant a license to him to practice dentistry in this State until the next meeting of said board, and no longer. Each applicant so examined shall pay the sum of three dollars: *Provided*, That no member of the said board shall grant a license to any one who has been rejected on examination by the board.

SEC. 8. Should any member of said board be unable to attend at the meeting of the board for the examination of applicants, he may appoint in writing a substitute, who shall have the same power on the examination that the member appointing him would have, if present. *Provided*, Such substitute be a person eligible to be a member of said board within the provisions of this act. *And provided further*, That the appointment of such substitute be by and with the written consent of the other members of the board.

SEC. 9. Each applicant for examination by the board shall pay into the treasury of the board the sum of ten dollars, which shall constitute a fund to defray the expenses of the board; and each member of the board shall receive therefrom the sum of three dollars per day for services rendered as such examiner. The board shall keep a list of the names of all persons to whom

licenses have been granted under the provisions of this act, and also of all persons practicing dentistry in this State in a book provided for that purpose, with the names arranged in alphabetical order.

SEC. 10. Any sum in excess of one hundred dollars which, under the provisions of this act, may accumulate in the treasury of said board, shall be paid by the treasurer thereof into the treasury of this State.

SEC. 11. Each person now engaged in the practice of dentistry in this State shall, within ninety days after this act takes effect, send an affidavit to the secretary of the board setting forth his name, place of business, postoffice address, the length of time he has been engaged in practice in this State, and if a graduate of a dental college, state the name of the same, and also pay to the treasurer of said board the sum of twenty-five cents, and on failure to comply with said provisions of this section he shall be required to appear and be examined by said board.

(NOTE.—The above Section 11, was in no way altered or changed by the amendments of 1891, and applied only to persons in practice at the time of the passage of the original act in 1883.)

SEC. 12. Any person who shall practice dentistry in this State, in violation of the provisions of this act, shall be deemed guilty of a misdemeanor, and upon conviction thereof shall be fined not less than twenty-five dollars, nor more than one hundred dollars, or sentenced to imprisonment in the county jail for a period not exceeding ninety days, or both, such fine and imprisonment, is in the discretion of the court. *Provided*, That nothing in this act shall be construed so as to interfere with physicians and surgeons in their practice as such.

SEC. 13. For the purposes of instruction students may be employed to assist in dental offices, and in the College of Dental Surgery of the University of Michigan, under the immediate observation and advice of the legal proprietors and professors thereof, but no person not legally qualified and registered under this act shall assume the charge and management of any dental office, or the responsibility of deciding upon or the doing of dentistry at any private residence or elsewhere.

SEC. 14. All persons not now registered, who desire to practice dentistry in this State, shall apply to the secretary of the board for registration. Each person seeking registration by virtue of a diploma shall send an affidavit to the secretary of the board, setting forth his name, place of business, postoffice address, the date of his graduation, and the name of the dental school from which graduated, and a registration fee of three dollars.

All applicants found qualified under this act shall be properly and promptly registered by the secretary of the board.

The above law as amended, took effect on the first day of October, 1891.

PROCEEDINGS.

Missouri State Dental Association.

The twenty-seventh annual meeting of the Missouri State Dental Association was held at Louisiana, Mo., July 7th to 10th inclusive.

The following officers were elected for the year 1892.

President, Dr. Geo. L. Shepard, Sedalia, Mo.; Vice-President, Dr. E. E. Shattuck, Kansas City, Mo.; Second Vice-President, Dr. J. T. Fry, Moberly, Mo.; Corresponding Secretary, Dr. Wm. Conrad, St. Louis, Mo.; Recording Secretary, Dr. W. M. Carter, Sedalia, Mo.; Treasurer, Dr. J. A. Price, Weston, Mo.

Board of Censors, Drs. C. J. McBride, Perryville, W. H. Buckley, Liberty, D. C. Lindsley, St. Louis, Mo.

Committee on Ethics, Drs. F. Slater, Rich Hill, E. B. Crane, California, E. W. Bear, Sedalia, Mo.

Publication Committee, Drs. E. E. Shattuck, Kansas City, W. S. Lowry, Kansas City, W. E. Tucker, Springfield, Mo.

Committee on Law, Dr. J. A. Price, Weston, Mo.

Committee on New Appliances, Dr. J. B. Vernon, St. Louis, Missouri.

The next meeting will be held at Clinton, Mo., the first Tuesday after July 4th, 1892.

WM. CONRAD, Cor. Sec'y.

EDITORIAL.

Bogus Medical College.

A revelation has been made within the last few weeks through the energy and perseverance of the *Cincinnati Commercial-Gazette*, that has created great surprise in the mind of the public not only in Cincinnati, but throughout the entire country. It is nothing less than a bogus medical college, run in the interest of one Dr. Van Vleck. This concern seems to have been organized and conducted for the purpose of issuing and selling medical diplomas, and it is said dental diplomas as well; so that not only the medical profession but the dental as well is interested in this expose.

Since attention has been called to this matter the medical profession of the country has been aroused to an unusual degree, and medical schools as well, and all are now enquiring what shall be done, not only in reference to this case, but how shall such institutions be prevented in the future. This institute was conducted much upon the same method as one discovered in Philadelphia some years ago, conducted by a Dr. Buchannon, which, as well as this, issued dental diplomas. Medical societies have had this subject under discussion during the last two or three weeks, considering and devising methods of relief from such enterprises as this.

It is a most alarming state of affairs when men with no medical knowledge are authorized to go abroad in communities and ply the vocation of a physician and surgeon with blank ignorance, and more likely to kill than to cure. Not only have medical societies taken up this matter, but the medical colleges also. On the 2nd inst. a meeting of the representatives of the various medical colleges of Ohio was held in Columbus, and after considering the whole ground, the conclusion arrived at, was that relief can only be had in stringent legislation. A committee was therefore, appointed to formulate a bill to be submitted to the

legislature for this purpose, and it is to be hoped it will be wisely constructed and sufficient to accomplish the desired end. This effort will doubtless have the support and co-operation of every medical society in the State, and undoubtedly the moral support of similar societies in the neighboring States, and from medical colleges as well. The bill, though not yet completely prepared, will embrace the best features of the laws of the States which have taken the foremost position as to medical legislation; it provides for the establishment of a State Examining Board of seven members to be appointed by the governor, one member retiring each year; the members of the board to receive \$5.00 per day and expenses for the time actually employed in the transaction of business. The board will examine all new graduates in medicine, and those desiring to practice without a diploma. The board can, at its discretion, accept the diplomas of graduates of medical colleges when it is satisfied with the attainments of the applicant. The bill further provides that each diploma must be accompanied by an affidavit to the effect that the person presenting it is the one to whom it was issued; and the presentation of a fraudulent diploma is made a crime under the Forgery Act and punished accordingly. Each certificate must be recorded in the county in which the holder lives. The bill will further provide that itinerant vendors of drugs or medicines, or those who advertise proposals to cure or treat disease or deformity, with any special drug, shall pay each to the treasurer of the board the sum of \$100 per month, and this in addition to passing a satisfactory examination. The physician who has practiced medicine or surgery for ten years previous to the passage of this bill will be held to have fulfilled the requirements of the law. The penalty for violation of the law will be a fine in from \$100 to \$200.

The various schools of medicine, as the Allopathic, the Homœopathic and the Eclectic have joined issue in the procurement of this law, which is a very gratifying thing indeed, and one prophetic of more certain success than has been reached hitherto. The schisms in the medical ranks have stood squarely in the way of procuring adequate legislation hitherto; now it seems success

must attend this effort, and not only are medical men and those in the practice of dentistry as well interested in this matter, but dental colleges are interested as well as medical colleges and dental societies also.

At a recent meeting of the Odontological Society of Cincinnati, after a free and full consideration of the subject, the following resolutions were unanimously adopted :

“ *Resolved*, That in view of the recent disclosures by the *Cincinnati Commercial-Gazette* of the fraudulent issue of medical and dental diplomas by the so-called Medical University of Ohio, we regard the present an opportune time for the dental profession of this city to take measures for obtaining an efficient law for regulating the practice of dentistry in Ohio.”

“ *Resolved*, That the Cincinnati Odontological Society shall arrange to co-operate with the Ohio State Dental Society, and other dental societies of the State, in asking the legislature to pass the bill known as an ‘ Act to Regulate the Practice of Dentistry in the State of Ohio,’ which was introduced last winter.”

After which, the unanimous opinion of the society was expressed that in this matter the *Commercial-Gazette* had exhibited the true journalistic enterprise, and that its managers are entitled to the thanks of the dental profession in this city, and of Ohio.

Again in the Harness.

Most of the dental profession of this country know, either directly or indirectly, “ *The Dental Advertiser*,” of Buffalo, N. Y. This has been a quarterly journal, published for many years by the Buffalo Dental Manufacturing Company, and was edited by one of the proprietors of that establishment. A change in its editorial management was inaugurated with the October number, which included making Dr. W. C. Barrett, M.D., D.D.S., the editor in charge; and we presume, pretty much everybody will understand what that means. As is well known, Dr. Barrett, was the proprietor and editor of the “ *Independent Practitioner*” for a number of years, and it is well known how lively he made that journal, and with what energy he stirred up things gener-

ally and some few things in particular. We will here suggest, that if any have corns, it would be well to keep out of his way, for he has a broad foot, and is by no means a light weight, and when that member comes down it means something. The Doctor is a fearless and independent writer, and we are glad to welcome him again into the editorial ranks, fully realizing that he is a *large* addition to it.

An Appointment Book.

PEARSON'S DENTISTS' APPOINTMENT BOOK FOR THE VEST
POCKET, FOR 1892.

This little Annual, which has just been issued, is in a very convenient form for daily use in making appointments and keeping memoranda; it is the smallest Engagement Book issued, and on this account very convenient; it should be in the hands of every practicing dentist. It can be obtained by addressing, R. I. Pearson & Co., Kansas City, Mo.

Bibliography.

THE PHYSICIAN'S VISITING LIST FOR 1892.

The Physician's Visiting List has just been issued by P. Blakiston, Son & Co., of Philadelphia, Pa.

This is the forty-first year of the publication of this little work. It is a remarkably comprehensive little work; amongst other things it contains a list of new remedies, Incompatibility, Poisons and Antidotes, revised for 1892, Disinfectants, Diagnosis and treatment of the simpler diseases of the Eye, Asphyxia, Apnoea, etc.

The Visiting List is sufficient for the record of twenty-five patients per week. There is also contained in it a great amount of valuable information in a very small space, a large share of which is interesting to the Dentist as well as to the Physician, and because of this every Dentist should have a copy of this work; it can also be used as an engagement book. It can be obtained of the Publishers or through Booksellers.

Obituary.

Died, at his home in Philadelphia, May 27th, 1891, of heart failure, James W. White, M.D., D.D.S., A.M., in the sixty-fifth year of his age.

Although he had been annoyed by different attacks of rheumatic pharyngitis for several years, his death was sudden and unexpected. While the years he lived were not many in number, his life, as numbered in deeds, was one of the longest. And it lessens the shock and pain on his removal, to know that he was spared a bed of pain and suffering.

Dr. White was born in 1826; descended on both sides from good old family stock. His father dying when he was only four years old, his educational advantages were few, and he was truly a self-educated man in the highest sense of the term. Whatever he read, whatever he learned, was labled and placed in his mind in an orderly manner, ready for use at an instant's notice. As a writer he was unexcelled for his faculty of condensation and his descriptive ability. His knowledge on any subject was exhaustive—whatever subject he pursued he learned it thoroughly, through and through. His reputation as a scientist and a physician was also of the highest. His contributions to dentistry were many and variable; he was the highest authority in the world on such subjects as diseases incident to dentition, and the relation the teeth bear to the entire organism.

But he was perhaps more widely known as editor of the *Dental Cosmos*, a position for which he was especially fitted. He did not regard a journal as a stand for the display of past and present events, merely a statement of what had occurred; but he viewed it in the light of a teacher, which should direct the minds of the readers to a higher plane that was always advancing higher, thus stimulating the readers to renewed energy.

His connections with the S. S. White Dental Man'g Co., were of long standing; he was present at its beginning and watched and helped it grow until it became the largest company of its kind in the world.

He was a man of unusually well-rounded principles ; liberal in all subjects, professional, religious and social. He was identified with many philanthropic movements, giving his time, his talents, his money willingly, cheerfully and unassumingly.

Many will mourn his death—the poor and oppressed, for they have lost a benefactor ; the medical profession, for it has lost one of its brightest members ; humanity, because a great and good man has gone. But a life such as his serves as a stimulus to all others to do what he has done, to be what he has been.

While not a member of this society the late Dr. James W. White was one of its constant visitors. His genial and kindly ways, his wise counsel and business qualifications were frequently called into requisition to aid in disposing of many trying questions.

And by his death this society has lost one of its best friends.

J. TAFT,
GEO. W. McELHANEY,
L. JACK,
F. ABBOTT,
E. S. TALBOT.

WHEREAS, Death has removed from this association Dr. C. W. Lewis.

WHEREAS, He was one of its youngest members, full of promise, of a genial, cheering disposition which had endeared him to those who knew him.

Resolved, That we desire to place on the records of this association this memorial of our appreciation of his many good qualities and acknowledge our humble submission to the Divine will.

J. TAFT,
GEO. W. McELHANEY,
L. JACK,
F. ABBOTT,
E. S. TALBOT.

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